

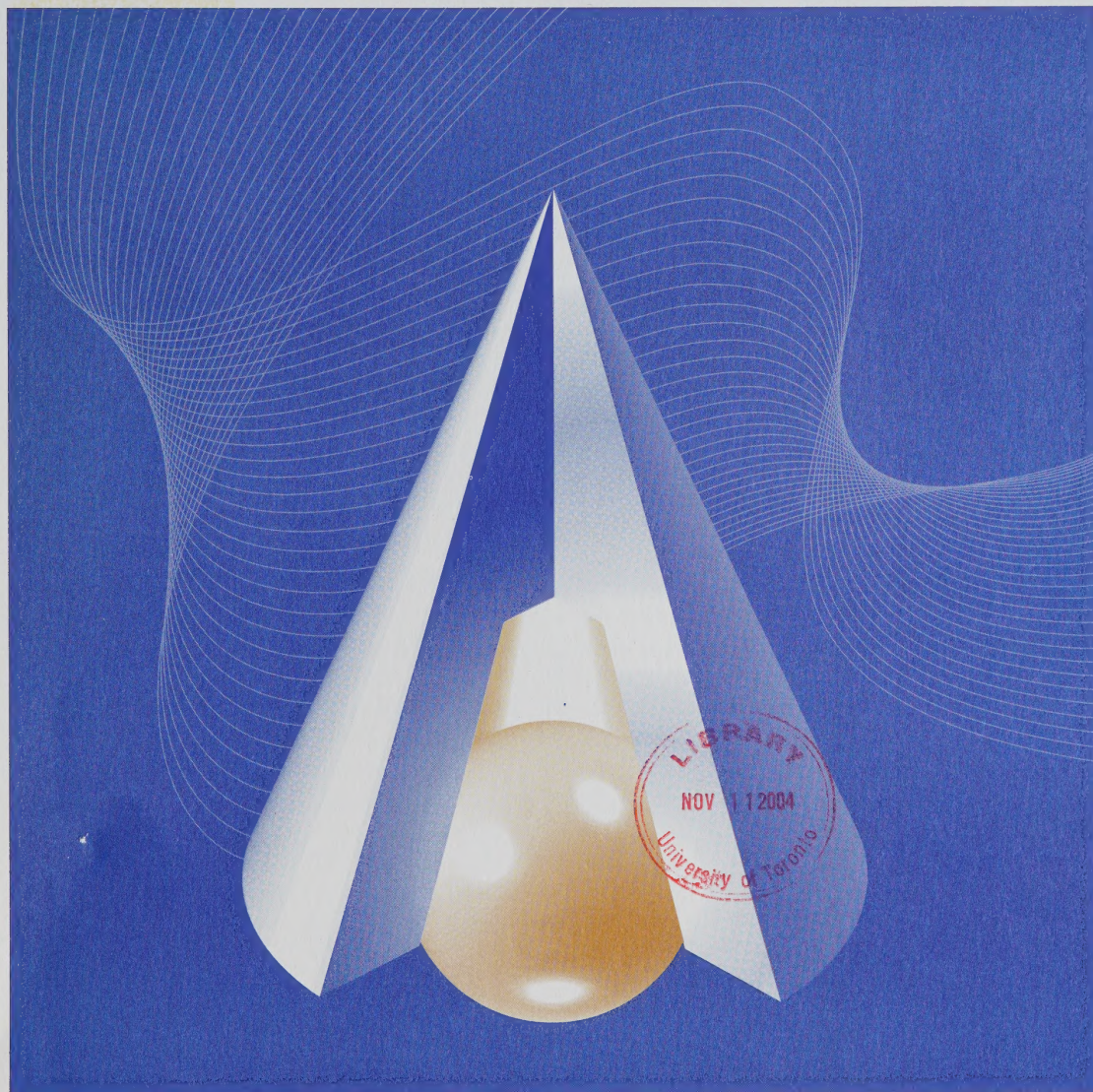
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*Postsecondary Field of Study and the Canadian Labour Market
Outcomes of Immigrants and Non-Immigrants*

By Arthur Sweetman and Stephan McBride

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Postsecondary Field of Study and the Canadian Labour Market Outcomes of Immigrants and Non-Immigrants

by

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Table of Contents

Executive Summary	4
I. Introduction.....	8
II. Data.....	10
III.1 Descriptive Statistics Across Levels of Education	11
III.2 Descriptive Statistics by Field of Study.....	15
IV. Regression Analysis of Earnings by Field of Study.....	21
IV.1 Bachelor's Degree Holders	22
IV.2 College Degree Certificate and Diploma Holders	27
IV.3 Master's Degree Holders	29
IV.4 Predicted Annual Earnings by Field	31
V. Economic Integration by Broad Field of Study	35
VI. Oaxaca-Blinder Decompositions.....	43
VII. Conclusion	46
References:.....	68

Abstract

Education in Canada's federal system for economic (skilled) class immigrant selection is treated as if it is homogeneous and only differs in quantity. In contrast, some provinces differentiate based on postsecondary field of study. This study finds large economic implications of field of study. It explores the issue for each sex, and for two subgroups of immigrants depending upon whether their education was obtained in Canada or elsewhere. Overall, large differences in the distribution of fields of study are observed between both immigrant groups and the Canadian born. For all groups there are also substantial differences in earnings and social benefit receipt across fields. On average, individuals in high earnings fields, but at lower levels of education, have greater earnings than those with higher levels of education in low earnings fields. This suggests that viewing education strictly as a quantity, and ranking a college diploma as worth fewer points than a university degree in the immigration points system, ignores important and systematic heterogeneity across fields.

Field of study is not observed to explain much of the earnings difference between immigrants and the Canadian born, though it is relatively more important for males than females in doing so. Interestingly, while there are a few exceptions, a general pattern is observed whereby the differences between high- and low-earning fields are not as large for immigrants as for the Canadian born. Similarly, social assistance receipt has smaller variance across fields for immigrants than for the Canadian born. Nevertheless, substantial inter-field differences are observed for each immigrant group.

Keywords: Immigration, postsecondary field of study, earnings, unemployment insurance

Executive Summary

Canada's federal system for economic (skilled) class immigrants assigns points to immigrant candidates for, among other characteristics, the level of education attained. Education, however, is treated as if it is homogeneous; applicants may have different quantities, but no consideration is given to how education might vary along other dimensions. This might be an appropriate approach for several reasons. For example, if those other dimensions are hard to quantify, if they have few economic implications, or if selecting immigrants on these criteria might have adverse impacts. Nevertheless, outside of the immigration system, education is considered to vary along several dimensions. It might, for example, be differentiated according to the language of instruction. This paper focuses on one particular distinguishing feature of postsecondary education that is both easy to quantify, and will be seen to have important economic implications: it normally involves specialization. That is, students usually focus on a particular field of study.

Though the federal government does not currently consider field of study, Québec's point system does take it into account in a limited way by assigning bonus points for fields that are considered to be valuable in the labour market and in short supply. That is, Québec's "liste des formations privilégiées" contains a relatively short and very specific list of both college, and university undergraduate and graduate, fields of study that are of value in its economy. A related, but broader approach has recently been put forward by the province of British Columbia. The Minister of Community, Aboriginal and Women's Services, which oversees the provincial immigrant nominee program, announced that employers will be allowed to nominate individuals in pure and applied sciences, computer sciences, and computer, electronic, electrical and mechanical engineering for that program. Part of the focus of this program is to facilitate the immigration of international students with degrees from Canadian universities in these subjects.¹ These initiatives suggest that understanding the impact of field of study on Canadian labour market outcomes is increasingly important.

The impact of postsecondary field of study is a subject worth understanding since it impacts the labour market outcomes and integration of immigrants to Canada. It is noteworthy that field of study and occupation are quite different measures. While graduates from some fields of study largely work in particular occupations (or industries), many fields produce students who work in a very wide range of occupations, and even the mostly highly occupation-specific fields have a large fraction of graduates working in fields other than the most common one. Further, occupation can be transitory. This study, therefore, explores and documents the Canadian labour market outcomes of immigrants as a function of their postsecondary field of study without regard for their current occupation.

Overall, the analysis finds that postsecondary field of study is clearly an important determinant of earnings for both the Canadian born and immigrant populations. In fact, graduates from highly paid fields at the college level have better labour market outcomes, on average, than similar graduates who hold Bachelor's degrees in some fields. Postsecondary field of study appears to be a strong predictor of labour market success for immigrants and the Canadian born alike. Although we only present results from the 1996 census, a similar analysis was conducted for the 1986 and 1991 censuses, and the pattern of results was consistent.

¹ BC Ministry of Community, Aboriginal and Women's Services *Backgrounder and News Release* (Dec.10, 2002).

Turning to the details of the analysis, first, to facilitate the analysis conceptually, the working age population under study was initially divided into 18 sub-populations identified by: sex (female and male), immigrant classification (those born in Canada, Canadian educated immigrants, and foreign educated immigrants), and highest postsecondary degree (college, bachelor's and master's). Since there are 54 fields of study, although not all apply to each level of education, these subpopulations reduce the parsimony of the study, but are required to facilitate a meaningful analysis of a heterogeneous issue. Further, to provide the context for the exploration of postsecondary field of study, initial descriptive statistics looking across levels of education are provided for each of the six sex-immigrant/Canadian-born groups. The most striking general observation across all levels of education is that, for both sexes, Canadian educated immigrants have extremely good labour market outcomes in terms of earnings, hours per week and weeks per year. They are better than those for the Canadian born, and far better than those for foreign educated immigrants. In part, this is because they have high levels of education. In contrast, immigrants without Canadian education have fewer years of education, are less likely to have had work in the year and have lower earnings.

There are also very sizable differences in demographic characteristics across the six sex-immigrant/Canadian-born groups. For both sexes, the foreign educated are the oldest of the groups, and they are almost alone in having a sizable fraction of individuals who speak neither of Canada's official languages. Further, a high fraction of those who speak neither language have less than a high school education. On other dimensions, individuals from both immigrant groups (Canadian and foreign educated) are dramatically more likely to be a visible minority and live in an urban area.

Initial descriptive statistics by field of study for the three selected levels of education show all three groups to have quite different distributions across field of study. Especially for females, but also for males, the Canadian-born group is much more likely, two to three times, to have a teaching degree. Immigrants, especially immigrant females compared to Canadian-born females, are much more likely to be in engineering and applied science, or in math and physical sciences. In general, female immigrants are more likely to enter "traditionally male" disciplines that are science or math related than are Canadian-born females (for example, economics comprises 1.34% of female Canadian-born bachelor's degrees, but 3.86 and 3.24 of the foreign and Canadian educated immigrant ones).

Simple descriptive statistics of mean salaries by field show many differences within levels of education that are in the order of 30% to 50% for the Canadian born. For example, male graduates with a bachelor's degree in English receive, on average, \$35,389 per year, whereas mechanical engineers receive \$55,987. Females, on average, have lower earnings, but the gaps are similar: fine art graduates earn \$21,335, whereas those in mathematics receive \$35,259 (mechanical engineering is \$42,168). Canadian educated immigrants have comparable, or higher, earnings to the Canadian born, but those of the foreign educated are lower. Further, the field of study differentials within the foreign educated subgroup are not as large as those within the other two subgroups, that is, the Canadian-born and the Canadian-educated immigrants.

At the bachelor's level, the statistical regressions reinforce the observation that the differences between fields are not as large for immigrants, especially for the foreign educated, as they are for the Canadian born. This is not to say that no field differences exist, or that the pattern is perfectly "smooth", but that there is a general tendency for fields with positive premia for the Canadian born to have a reduction in that premium observed for the immigrant subsample (though the premia remain substantial).

For college graduates there are far fewer differences in field of study premia between the Canadian-born and immigrant populations. The premia by field are, however, broadly similar with the more science and technology oriented fields having greater earnings along with those in business, law and related fields. At the master's level the pattern is quite different. Field of study premia are still observed, but foreign educated immigrants with a master's degree generally have positive premia relative to the Canadian born, especially in the lower paying arts, and literature and humanities, fields. This, once again, serves to reduce the differential between the high and low paying fields for the immigrant population relative to the Canadian-born one.

Predicted annual earnings based on the regressions allow comparisons across fields and levels of education for comparable individuals. They show, on average, individuals in high earnings fields, but at lower levels of education, have greater earnings than those with higher levels of education in low earnings fields. This suggests that viewing education strictly as a quantity, and ranking a college diploma as worth fewer points than a university degree in the immigration points system, ignores important and systematic heterogeneity across fields.

Economic integration profiles for the foreign educated are also presented. They graphically show how earnings increase with time in Canada, holding all other observable factors constant, for each field of study and level of education combination. Increased earnings with years since migration are observed for all fields at the bachelor's level, except perhaps fine and applied arts where there is little earnings progression with time in Canada. At the college level there is much less earnings progression as years since migration increase. This is in accord with age-earnings profiles in the literature, which show much smaller earnings increases with age for those with lower levels of education. It suggests that Canadian human capital accumulation is more prevalent for those with higher levels of education. The integration profiles for those with master's degrees are at least as steep as those with a bachelor's degree. However, the sample sizes are smaller and some of the plots are quite noisy, especially for the females.

A set of (Oaxaca-Blinder type) decompositions are used to compare each immigrant group to its Canadian-born counterpart. This analysis allows any earnings differences to be decomposed into differences in endowments, and the return on those endowments. It only addresses variables that are common to immigrants and the Canadian born, and only looks at the role of each characteristic in explaining differences between the groups. Field of study is treated as one type of endowment, and it explains at most about 14% of the difference in earnings in each pairwise comparison, and for most education groups it explains less. Age and language appear to be more important characteristics in economically differentiating each immigrant group from the Canadian born, especially for the females. For them, age is associated with up to 20% to 30% earnings differences, and language explains even more. However, for the females none of the observed characteristics explain as much as is left unexplained; this is an "immigrant effect" comprising factors not common to immigrants and the Canadian born, and/or reflects variables that are not measured in the census data. For males, field of study is associated with a slightly higher fraction of the variance in earnings than that for females, and while age and language are less important than for females, they remain more important than field of study in explaining earnings differences between immigrants and the Canadian born. Note that this exercise measures the importance of the current distribution of field of study in explaining existing differences in earnings; it says nothing about what might occur if field of study were added to the points system in which case it would vary systematically with immigrant status.

Overall, there are sizeable earnings differences across fields of study, and these differences are observed for both immigrant groups and the Canadian born. While the magnitude of the differences are, in general, somewhat smaller for the immigrant groups, the approach adopted by British Columbia does select immigrants with fields of study that tend to have higher than average earnings.

An appendix to this study looks at annual Unemployment Insurance (Unemployment Insurance rather than Employment Insurance since the data is from 1995) and other government transfer (e.g., social assistance) receipt. Both immigrant groups are observed to receive less Unemployment Insurance than the Canadian born; and only foreign educated immigrant males receive more government transfers than their counterpart Canadian born group. In terms of patterns across fields of study, for the most part the results are mirror images of those for earnings. One exception to this is that those, especially the Canadian-born, with education degrees tend to receive very large Unemployment Insurance transfers. Overall, those fields with high earnings also have lower, or much lower, levels of benefit receipt from both Unemployment Insurance and other government transfers. Interestingly, the pattern seen for earnings whereby the variation across fields is larger for the Canadian born than for either immigrant group is also apparent for these benefits. While the pattern of differences across fields is present for all groups, it is generally larger for the Canadian born (though the study does document a few exceptions, for example females with college certificates in trades and technology).

This study does not look at the impact that a large scale field of study focussed immigration policy might have on those already working in the Canadian labour market (both Canadian born and previous entry cohorts of immigrants). This is an area that should be pursued in future research should the policy of targeting immigrants by field of study be pursued, especially if the fraction of immigrants in such fields grows substantially. Relatedly, it would be worth considering the social impacts of an immigrant pool comprised largely of individuals from a narrow set of fields of study.

If field of study were to be used in the points system, it would also be advantageous to collect data on field of study at landing. For the foreign educated, the field observed in the census must be the same as that when the immigrant arrived in Canada, but this need not be the case for those with Canadian education since the census only has information on the field of study for the highest level of education at the survey date. Of course, some of the Canadian educated arrive at a sufficiently young age that they would not have entered postsecondary prior to landing, but there remains a substantial group for whom the field recorded in the census may not reflect the one that would have been observed at entry. In a similar vein, for policy purposes with respect to the points system, field of study is only relevant for those who are assessed under that system. The census data employed in this study does not allow immigrant class to be observed; collecting information that allowed field to be identified along with immigrant category would be valuable.

I. Introduction

Canada's federal system for economic (skilled) class immigrants assigns points to immigrant candidates for, among other characteristics, the level of education attained. Education, however, is treated as if it is homogeneous; applicants may have different quantities, but no consideration is given to how education might vary along other dimensions. This might be an appropriate approach for several reasons. For example, if those other dimensions are hard to quantify, if they have few economic implications, or if selecting immigrants on these criteria might have other adverse impacts (perhaps it would affect outcomes for the pre-existing population, both the Canadian born and earlier cohorts of immigrants). Nevertheless, outside of the immigration system, education is considered to vary along several dimensions. It might, for example, be of a particular "quality", where quality can be defined according to various metrics such as academic marks (e.g., grade point average), standardized test scores, or school or program reputation or ranking. For some purposes education might be differentiated according to the language of instruction. This paper focuses on one particular distinguishing feature of postsecondary education that is both easy to quantify, and will be seen to have important economic implications: it normally involves specialization. That is, students usually focus on a particular field of study.²

Though the federal government does not currently consider field of study, Québec's point system does take it into account in a limited way by assigning bonus points for fields that are considered to be valuable in the labour market and in short supply. That is, Québec's "liste des formations privilégiées" contains a relatively short and very specific list of both college, and university undergraduate and graduate, fields of study that are of value in its economy.³ A related, but broader approach has recently been put forward by the province of British Columbia. The Minister of Community, Aboriginal and Women's Services, which oversees the provincial immigrant nominee program, announced that employers will be allowed to nominate individuals in pure and applied sciences, computer sciences, and computer, electronic, electrical and mechanical engineering for that program. Part of the focus of this program is to facilitate the immigration of international students who have taken Canadian programs in these subjects.⁴ These initiatives suggest that understanding the impact of field of study on Canadian labour market outcomes is increasingly important.

The impact of postsecondary field of study is a subject worth understanding since it impacts the labour market outcomes and integration of immigrants to Canada. It is noteworthy that field of study and occupation are quite different measures. While graduates from some fields of study largely work in particular occupations (or industries), many fields produce students who work in a very wide range of occupations, and even the mostly highly occupation-specific fields have a large fraction of graduates working in fields other than the most common one. This study, therefore, explores and documents the Canadian labour market outcomes of immigrants as a function of their postsecondary field of study without regard for their current occupation.

² While many of the dimensions along which education varies may interact, exploring these interactions is beyond the scope of this study.

³ This is broadly similar to the Australian model.

⁴ BC Ministry of Community, Aboriginal and Women's Services *Backgrounder and News Release* (Dec.10, 2002).

Current work by Ferrer and Riddell (2002) looks at how immigrants integrate into the Canadian labour market as a function of their level of education, but it does not look at field of study. There is also research looking at selected labour market outcomes by field of study (e.g., Finnie 2001, and Côté and Sweetman 2000), but this literature does not look at immigrant status, or focus exclusively on the Canadian educated. Li (2001) explores the economic value of educational certifications/degrees (e.g., a bachelor's degree), not fields, but does use field of study as a statistical control (presented in his appendix table 1). However, he uses very coarse measures of field (e.g., social science including law is treated as a single field) and confounds their impact with current occupation and industry, which is appropriate given his objective, but does not allow one to focus on field of study in its own right.

Using census data, this study takes a highly disaggregated approach, looking at field of study by sex, level of education, and whether the education was completed in Canada or elsewhere. Unfortunately, we cannot distinguish between immigrant classes (e.g., economic, family and refugee) in these data, and this prevents us from focussing on the economic class that is assessed according to the points system for their labour market attributes. Nevertheless, we do observe important differences in earnings by field of study. Our most important findings include the following. First, all of the groups examined, and most importantly, immigrants and the Canadian born of the same sex and level of education, have quite different distributions of field of study. Immigrants are much less likely to have an education degree, and more likely to be in engineering and sciences. Secondly, while immigrants have substantial earnings differences across fields of study, they are observed to, for the most part, have smaller differences between the high and low earnings fields of study than the Canadian born. Third, field of study explains some of the immigrant- Canadian born earnings gap, but is only one factor among many and is no more important, and is much less important for the females, than other criteria such as age and language knowledge. This is not surprising given that field of study has not been a selection criteria to date. If it were made a selection criteria, then undoubtedly it would, by design, play a larger role in differentiating foreign educated immigrants from the Canadian born.

The format of this report is as follows. In section II the data employed will be described. Then, in section III, follow a series of sub-sections that look at different aspects of the broad issue under study. First descriptive statistics are used to position the postsecondary group under study in a broader set of educational categories. Second, descriptive statistics by detailed field of study are presented. Subsequently, in section IV, regressions are employed to explore the field of study impact controlling for the obvious and substantial differences across the subpopulations under study, and predictions are generated based on these regressions. Then, in section V, economic integration profiles are presented, and finally in section VI decompositions are utilized to gauge the overall impact of field of study and put it in perspective compared to other variables such as age. Section VII concludes. Also, an appendix is provided that looks at Unemployment Insurance and other government transfer receipt as a function of field of study.

II. Data

For this project the only feasible data are the national censuses, and we use 1986, 1991, and 1996, 20% files. Most of the questions addressed in this study, however, are cross-sectional in nature and for those we present only the results from the 1996 census. Despite focussing on the 1996 results, we generated the same results for each census year in almost all cases. For the most part there are few substantive differences across census years. There is, for example, no clear trend in the premium to computer science across the three censuses. One important difference, however, was that the 1991 census reports earnings from 1990, which was the peak of the business cycle and immigrant workers fared relatively well, but this tended to affect the entire distribution and not the gaps between disciplines. When longitudinal questions are pursued, we employ all three censuses. Large samples are required to permit analysis of the detailed subpopulations of interest. Along with the common demographics, each census provides information on earnings and detailed major field of study for the highest level of postsecondary education.

The sample for analysis, unless otherwise stated in reference to a particular portion of the analysis, includes all individuals between the ages of twenty-five and sixty-five with no missing responses, not residing in the Territories, not attending school (though this is not available for the 1986 census), and who are permanent residents (only in 1996). Further, we drop those immigrants who landed in the first six months of the census year since we are not interested in the very strong short-run entry effect. In most analyses we take a random 33% sub-sample of the Canadian-born comparison group to facilitate estimation given the very large sample size. In the earnings portion of the analysis the sample is further restricted to those with positive wage and salary income, and positive weeks worked. Some previous analyses have made tighter restrictions, such as those with at least 40 weeks of work (e.g., Baker and Benjamin, 1994), however, for policy purposes the larger sample is more appropriate since it better reflects the relevant population. In the econometric regressions we further focus on individuals with exactly one of three educational attainments: college or trades certificate, bachelor's degree, or master's degree.

Looking at detailed fields is important since, as will be seen, there is substantial heterogeneity among the broad classifications frequently employed. For example, all of the social sciences, including law and business, is one grouping in the file most commonly employed. In contrast, postsecondary fields such as political science or economics need to be independently observed. Still, there are limits to disaggregation, and the four hundred and forty (440) different fields of study available are collapsed into fifty-four (54) primary fields, which are employed in our analysis. Of course, for those with Canadian education the field reported in the census data need not reflect an immigrant's field at the time of entry since the census only collects the field of the highest level of postsecondary at the census date. Several other benefits of this census file are the inclusion of information specific to the analyses of immigrant labour market outcomes, including: year-of-immigration, age-at-immigration, and characteristics of immigrants residing in the Atlantic Provinces (which are suppressed in the smaller files). The censuses, however, do not contain information on the year of degree completion, location of degree completion, or class of immigration. Another advantage of the census files is that they are commonly used to look at immigration issues. Thus, previous work using these data also provides a background against which to compare results from the current research.

Earnings are defined to be the sum of wage and salary income and non-negative self employment income. All values exceeding \$250,000 are top-coded to this value; less than one percent of individuals are constrained by this. The log-earnings variable is the natural logarithm of earnings.

An immigrant is simply defined as someone not born in Canada, with the following minor edits. Individuals who listed a Canadian province as their location of birth, but also had responses for year-of-immigration and age-at-immigration were excluded from the analysis. Individuals who were coded as Canadian-born, but listed a foreign country of birth, and did not have a response for year-of-immigration or age-at-immigration were included, but their place of birth was changed to Canada. These individuals, approximately 0.005 of the sample, may be, for example, children of Canadian diplomats or military personnel serving overseas.

Total years of schooling is derived from three census questions: years of elementary and secondary schooling, years of university, and years of other postsecondary. Individuals with less than a complete year of postsecondary are coded to have obtained one half year of added schooling. Schooling is top coded at 24.⁵

Immigrants are separated into those with, and without, Canadian education. To be classified as Canadian educated, the individual's years of schooling plus five is at least as great as his / her age-at-arrival. All those with years of schooling greater than age at immigration clearly have some Canadian education. But, those with fewer years than their age of immigration may have had discontinuous schooling and have obtained some of their education in Canada. The classification algorithm is, therefore, conservative in that individuals who do not attend school continuously may be included in the foreign educated category despite having some Canadian education, and choosing age five is similarly conservative. Since the Canadian education likely results in more favourable outcomes in the Canadian labour market, coefficient estimates for the foreign educated will probably be somewhat better than they would be if we had better measures of where the education was obtained.

III.1 Descriptive Statistics Across Levels of Education

Before looking at field of study, an initial set of descriptive statistics comparing levels of education is provided to place the study into context. Tables 1 and 2 are for females and males respectively. Panels A, B and C present an overview of, in sequence, the Canadian born, and the foreign and Canadian educated immigrant populations. These tables provide basic descriptive statistics by highest level of education. The upper portion of each panel comprises both those who work and those with zero earnings and weeks of work, while the working sub-sample at the bottom of each panel includes only those with positive earnings and weeks of work in the relevant year. Focussing first on the females, it is clear that many more immigrants are foreign, rather than Canadian, educated and that this group is older than the other two. The size differences between the two groups are greatest at the lower levels of education since Canadian educated immigrants tend to have higher educational credentials. In looking at the sample sizes, recall that the Canadian-born sample is a 33% random sub-sample of the file, whereas the two immigrant samples are 100% samples of the file or 20% of the population. Some substantial differences are visible among the three groups. The foreign educated are, on average, over four years older than the Canadian-born,

⁵ No college recipients are affected by this restriction; one bachelor recipient is affected, and less than one percent of all master's degree recipients are influenced.

and six and a half years older than the Canadian educated immigrants. There are also important differences by years of school: overall, it is just over 1.5 years greater for the Canadian educated immigrants, but over half a year less for those educated outside of Canada, compared to those born in the country. This is an interesting distinction since previous work, such as Borjas (1993), has combined the two immigrant groups and noted that immigrants, overall, have more years of schooling than the Canadian-born. The gap he observes seems to be attributable to the Canadian educated subgroup.

Table 1 - DESCRIPTIVE STATISTICS BY HIGHEST LEVEL OF EDUCATION - 1996 FEMALES

	Canadian Born Females									Total
	<HS	HS	Col	BA -	BA	BA +	MD	MA	PHD	
Age	46.17	41.55	40.52	45.93	38.62	41.55	37.91	42.15	44.65	42.59
Years School	9.48	12.24	13.50	15.22	17.09	17.62	20.19	19.05	22.05	12.48
Urban (%)	41.44	55.48	52.14	56.57	67.04	69.52	70.62	75.82	80.69	51.84
Visminority (%)	0.60	0.84	0.97	0.87	2.09	1.28	2.46	1.52	2.11	0.94
No Work in Yr (%)	46.24	24.00	16.75	18.19	9.83	9.89	2.66	7.28	5.88	27.03
English (%)	65.48	61.98	68.65	53.67	59.24	60.30	51.35	53.45	46.28	64.23
French (%)	23.11	18.97	13.18	18.10	9.23	6.10	5.49	6.07	2.48	17.27
Bilingual (%)	10.70	19.03	18.14	28.22	31.51	33.59	43.16	40.48	51.09	18.25
Neither (%)	0.71	0.01	0.02	0.01	0.02	0.02	0.00	0.00	0.15	0.24
Earnings (\$)	7,884	15,211	18,063	22,911	29,672	34,069	71,229	40,009	46,604	16,137
Working Sub-Sample										
Hours	26.96	29.60	29.90	30.61	32.46	34.20	39.73	35.06	38.45	29.75
Weeks	41.17	44.17	43.96	44.80	45.05	45.54	46.52	46.05	47.40	43.65
Earnings	16,413	21,078	22,940	29,246	33,653	38,518	73,361	44,360	49,846	23,508
Frequency (%)	31.96%	24.77%	27.53%	2.62%	9.41%	1.52%	0.25%	1.78%	0.17%	100%
Number	124,906	96,806	107,623	10,234	36,771	5,926	977	6,953	663	390,859
Foreign Educated Immigrant Females										
Age	49.58	44.84	45.99	45.36	42.91	44.66	44.40	44.17	46.83	46.81
Years School	8.34	12.44	13.76	15.87	16.69	17.35	18.72	18.32	20.67	11.90
Urban (%)	87.87	87.15	83.99	86.84	88.75	88.24	86.27	88.85	87.87	86.92
Visminority (%)	47.99	54.85	44.94	58.70	66.66	50.59	49.44	42.10	31.35	50.53
No Work in Yr (%)	49.59	34.24	24.78	24.70	22.31	21.02	22.85	18.08	12.44	36.05
English (%)	68.87	82.51	85.76	79.60	82.59	71.62	77.06	75.85	65.16	77.30
French (%)	5.99	4.20	3.48	3.50	2.02	3.81	2.17	1.61	2.06	4.44
Bilingual (%)	4.02	7.22	8.84	14.10	13.70	22.83	17.90	21.64	32.58	7.90
Neither (%)	21.12	6.07	1.92	2.80	1.69	1.75	2.87	0.89	0.21	10.36
Earnings (\$)	7,792	11,662	15,482	16,519	18,675	21,033	39,170	24,805	38,955	12,518
Working Sub-Sample										
Hours	28.59	29.79	29.99	29.77	30.65	31.27	33.25	32.16	35.65	29.73
Weeks	42.54	43.23	43.79	43.39	43.31	42.59	43.02	43.55	45.28	43.19
Earnings	16,663	19,168	22,117	23,636	25,967	29,002	55,482	32,950	46,580	21,153
Frequency (%)	39.59%	20.84%	22.36%	3.37%	8.67%	1.47%	0.53%	2.72%	0.45%	100%
Number	86,492	45,542	48,863	7,363	18,946	3,206	1,151	5,946	973	218,482
Canadian Educated Immigrant Females										
Age	42.96	40.03	39.85	42.44	38.08	41.39	38.80	42.59	45.30	40.46
Years School	10.50	12.66	14.11	16.29	17.33	17.97	20.39	19.43	22.05	14.10
Urban (%)	73.52	79.84	78.44	82.31	85.21	84.56	82.76	85.65	86.32	79.63
Visminority (%)	14.06	21.21	27.92	36.25	41.52	25.61	47.20	29.55	21.25	26.23
No Work in Yr (%)	32.43	19.89	15.30	14.76	10.07	8.97	4.50	7.96	4.66	18.09
English (%)	89.27	85.65	85.56	77.01	72.35	64.21	68.79	62.29	53.28	81.99
French (%)	1.88	1.29	1.31	1.09	1.03	1.03	1.09	0.89	0.73	1.32
Bilingual (%)	7.80	12.87	13.02	21.75	26.59	34.67	30.12	36.76	45.85	16.40
Neither (%)	1.06	0.20	0.12	0.15	0.04	0.09	0.00	0.06	0.15	0.29
Earnings (\$)	12,589	17,776	19,779	24,439	29,255	34,340	72,221	40,131	47,879	21,468
Working Sub-Sample										
Hours	29.63	30.50	30.59	32.51	32.99	34.24	40.17	34.65	38.83	31.39
Weeks	44.04	45.01	44.62	45.30	45.35	45.40	47.29	45.64	47.12	44.90
Earnings	19,930	23,309	24,569	30,001	33,708	38,824	76,939	44,671	51,726	27,522
Frequency (%)	18.41%	24.50%	29.80%	3.12%	15.76%	2.63%	0.75%	4.22%	0.81%	100%
Number	15,709	20,909	25,428	2,662	13,449	2,241	644	3,604	687	85,333

Source: 1996 Canadian census. Note the frequency and number of observations are for the entire sample, not the sub-sample.

There are several other striking differences across the three panels. Urbanization is dramatically greater among the immigrant population, especially the foreign educated sub-sample. From almost 52% for the Canadian born, urbanization rises to just under 80% for the Canadian educated immigrants, and to about 87% for immigrants educated outside of Canada. Further, visible minority status exhibits even larger gaps. Less than one percent of the Canadian-born women describe themselves as visible minorities, while 26% of the Canadian educated immigrants do, and this compares to 50% for those immigrants educated outside of Canada. The fraction of each group that worked zero weeks in the year preceding the census, a measure of labour force participation, has an interesting pattern across the three groups. Overall, in the right-most column, it is seen to be 27% for the Canadian-born, but lower, at 18% for Canadian educated immigrants, and higher, at 36% for foreign educated immigrants. These differences are nontrivial. The ranking is the same across all levels of education, but is much higher for those with lower levels of schooling. At the lowest level of schooling, less than a high school degree, the percentage not working is very similar for the Canadian-born and foreign educated immigrant groups.

Language currently spoken also has an interesting pattern. Immigrants, especially those educated in Canada, are much more likely to speak English, and much less likely to speak French, than the Canadian-born. Those educated elsewhere are much (about 40 times) more likely to speak neither language. Foreign educated immigrants with less than a high school degree are a notable group. They are massively more likely than any other subgroup to speak neither of Canada's official languages. Over 21% of this group fall into this category and it may hinder their labour market integration. Overall, almost all those who speak neither official language are in the foreign educated immigrant group. Undoubtedly, part of the reason that the foreign educated remain in this group, that is they do not pursue Canadian education, is related to their official language abilities (along with age and other characteristics).

Before turning to the sub-sample of those who worked in the previous year, which is equal to the total sample less the fraction who did not work in the previous year as indicated in the upper portion of each panel, it is worth looking at the earnings for the entire population. This number is an average of the earnings for those who work, and zeros for those without any earnings in the year. The number for those who work is of greater interest and is usually the focus of attention and policy, but, for immigration purposes, including the zeros is also of some interest. Canadian educated immigrants clearly have the highest earnings of the three groups for this sample. This arises both because they are more likely to work, and because (as will be seen, below) they have higher earnings when they do work. Looking at the working sub-populations, there are again some clear differences across the groups and levels of education. These differences are somewhat similar to those observed for the "no work in the previous year" variable. Canadian educated immigrants work more hours per week, more weeks per year and have higher annual earnings than either of the other groups. In contrast, foreign educated immigrants and the Canadian-born have very similar hours per week, and weeks per year, but the Canadian-born earned, on average, about \$2350 more in 1995. Interestingly, there is a clear gradient in all three variables with education, and the differences across groups are most pronounced at the lower levels of education.

Scanning across educational levels for the three panels in table 1, it is clear that Canadian educated immigrants have higher levels of educational certification than either of the other two female groups. Further, conditional on a particular level of education (each distinct column), the Canadian educated immigrants and the Canadian born have generally similar outcomes, however the foreign educated immigrant females do worse in terms and earnings in each education category, especially at the higher levels of education.

Table 2 - DESCRIPTIVE STATISTICS BY HIGHEST LEVEL OF EDUCATION - 1996 Males

	<HS	HS	Col	Canadian Born Males			MD	MA	PHD	Total
				BA -	BA	BA +				
Age	44.77	40.52	41.14	44.39	40.31	44.30	44.62	44.71	47.88	42.41
Years School	9.38	12.41	13.31	15.61	17.27	17.88	20.23	19.19	21.65	12.51
Urban (%)	39.88	55.79	50.29	62.64	69.95	68.74	64.49	73.07	75.95	51.00
Visminority (%)	0.71	1.03	0.85	1.08	1.94	1.28	2.40	1.22	1.18	0.97
No Work in Yr (%)	23.90	9.74	7.95	8.83	4.55	6.07	2.44	4.81	3.84	13.26
English (%)	66.58	62.26	68.40	53.37	61.86	59.78	59.30	56.35	51.91	65.09
French (%)	19.73	14.78	11.93	10.72	5.86	5.80	3.23	4.39	1.32	14.18
Bilingual (%)	13.19	22.94	19.63	35.92	32.28	34.40	37.47	39.24	46.77	20.54
Neither (%)	0.50	0.02	0.04	0.00	0.01	0.02	0.00	0.02	0.00	0.19
Earnings (\$)	19,157	29,826	32,247	38,646	48,854	54,194	110,334	61,541	65,823	30,661
Working Sub-Sample										
Hours	34.44	38.82	38.71	40.28	41.36	41.35	47.16	41.80	42.92	38.06
Weeks	41.56	45.90	45.54	47.20	48.13	48.28	48.91	48.50	49.06	44.98
Earnings	27,993	34,918	36,617	45,045	53,022	59,225	116,127	65,161	71,635	37,704
Frequency (%)	33.89%	20.55%	29.43%	1.68%	9.39%	1.42%	0.58%	2.57%	0.49%	100%
Number	134,380	81,489	116,701	6,648	37,212	5,621	2,292	10,202	1,954	396,499
Foreign Educated Immigrant Males										
Age	48.93	44.35	48.08	46.54	45.09	46.68	48.72	46.23	49.24	47.33
Years School	8.64	12.58	13.66	16.27	16.99	17.75	19.33	18.66	20.80	12.73
Urban (%)	87.67	89.66	82.36	90.37	90.59	90.09	78.59	89.14	85.29	86.86
Visminority (%)	46.37	60.63	36.71	60.93	67.17	51.49	53.97	49.79	41.65	48.76
No Work in Yr (%)	25.30	15.92	13.41	14.14	11.61	11.49	10.52	9.05	7.07	17.24
English (%)	73.19	80.92	85.35	78.28	83.33	70.79	77.87	76.60	70.09	79.09
French (%)	5.56	3.91	3.31	3.04	1.65	2.72	1.40	1.42	1.36	3.83
Bilingual (%)	7.13	10.01	9.95	16.11	13.48	25.04	19.33	21.40	28.24	10.83
Neither (%)	14.12	5.16	1.40	2.57	1.55	1.45	1.40	0.59	0.31	6.25
Earnings (\$)	18,349	21,451	28,192	27,284	32,703	34,978	85,287	41,472	54,913	26,100
Working Sub-Sample										
Hours	35.23	37.09	38.11	37.80	38.27	38.38	46.11	39.92	41.47	37.36
Weeks	43.68	44.52	45.36	45.04	45.63	45.22	46.93	46.16	47.73	44.85
Earnings	26,739	27,865	35,131	34,798	40,413	43,466	100,996	49,544	63,070	34,304
Frequency (%)	33.39%	16.31%	27.80%	3.09%	9.90%	1.94%	1.07%	4.51%	2.00%	100%
Number	69,015	33,700	57,452	6,386	20,451	4,005	2,214	9,315	4,132	206,670
Canadian Educated Immigrant Males										
Age	41.42	38.86	41.73	42.99	40.07	43.72	42.73	44.67	48.65	41.30
Years School	10.52	12.95	14.30	16.65	17.52	18.34	20.66	19.58	21.87	14.65
Urban (%)	73.54	80.57	76.26	84.35	85.79	82.48	79.59	83.57	83.30	79.18
Visminority (%)	17.36	26.02	22.37	33.78	37.98	26.94	42.79	29.13	26.10	25.94
No Work in Yr (%)	14.29	8.29	6.76	9.29	4.99	6.19	2.63	4.72	3.87	7.89
English (%)	88.79	84.27	86.69	77.73	75.43	69.79	72.35	67.45	61.29	82.15
French (%)	1.53	0.93	0.90	0.95	0.60	0.85	0.51	1.00	0.36	0.95
Bilingual (%)	8.94	14.62	12.32	21.21	23.92	29.23	27.14	31.51	38.31	16.69
Neither (%)	0.74	0.18	0.09	0.11	0.05	0.13	0.00	0.04	0.04	0.21
Earnings (\$)	25,488	30,949	35,057	37,671	46,169	50,926	112,084	58,271	67,592	38,131
Working Sub-Sample										
Hours	38.12	39.21	39.71	40.44	41.22	41.54	49.06	41.90	42.94	40.06
Weeks	45.09	46.63	46.76	46.95	47.85	48.16	48.64	48.34	49.25	46.89
Earnings	31,835	35,463	39,211	43,763	50,163	56,427	117,319	63,137	71,760	43,303
Frequency (%)	17.25%	19.37%	32.26%	2.94%	15.94%	2.54%	1.47%	5.82%	2.42%	100%
Number	16,027	17,999	29,975	2,735	14,812	2,357	1,367	5,404	2,245	92,921

Table 2 provides similar information from men as was provided above for women. There is, as has been observed previously (see, e.g., Benjamin, Gunderson and Riddell, 1998, for a textbook discussion of male-female earnings gaps), a difference in levels between men and women, with the former having greater weeks and hours of work, and greater annual earnings. Also, the males, especially the immigrant groups, are more likely to have a higher level of education. Comparing the frequency numbers on the bottom of tables 2 and 3, foreign educated immigrants have higher percentages of people in the highest three categories recorded, and somewhat fewer people at the

high school and college levels. In contrast, the Canadian educated immigrants, perhaps because they are younger, are much less likely to have incomplete high school and more likely to have a university bachelor's or advanced degree. However, the broad patterns of demographics are similar, even if not exactly the same for the two sexes. The foreign educated are older than their Canadian-born counterparts, and the Canadian educated immigrants are younger. Both immigrant groups are more urbanized, and much more likely to be a visible minority. Once again, almost only the foreign educated speak neither official language, but the gap is not as large as it is for the women, because foreign educated males are more likely to speak an official language.

III.2 Descriptive Statistics by Field of Study

The remainder of the analysis focuses mostly on field of study within three postsecondary education categories; those whose highest level of education is a college degree or certificate, a Bachelor's degree, or a Master's degree. We attempted to look at those with PhDs but the sample sizes were too small to permit individual fields to be studied reliably. We do include them in some portions of the analysis, but their inclusion is limited. Some of the descriptive statistics that follow also include an "other post-secondary" group, but we do not explore it in detail.

Descriptive statistics by field of study are presented in tables 3 through 6. Tables 3 and 4 look at, respectively, the distribution of individuals across fields and mean earnings by field for females in each of the three groups. Tables 5 and 6 do the same for males. All of the tables in this section are based on the sample of all individuals regardless of weeks of work or earnings in the previous year. Thus there are a number of individuals with zero earnings in each cell. This looks at a different question than that answered by looking only at workers (i.e., those with strictly positive earnings); in thinking about immigration policy, the entire population, regardless of work status, is relevant for thinking about issues such as poverty and tax payments. We focus on workers exclusively in the earnings regressions below, but on the entire sample in subsequently looking at Unemployment Insurance and other government transfers. Further, tables 1 and 2 contain very slightly larger samples than 3 through 6 since there is some nonresponse to the field of study question in the census. Also, the columns do not always sum to 100% since some cells contained too few individuals for reliable estimates to be provided and those cells are left blank.

TABLE 3
COLUMN FREQUENCY %

1996 CANADIAN CENSUS - FEMALES

Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Education												
Education	8.35	30.65	27.09	38.74	7.81	15.19	17.70	19.16	7.51	16.73	21.13	26.69
Fine & Applied Arts												
Fine Art	10.55	3.69	3.32	2.76	10.73	4.32	3.94	3.78	12.70	3.89	3.33	3.43
Literature & Humanities												
History		1.91	1.45	0.90		2.28	2.54	0.92		2.14	2.55	0.99
Media	1.05	1.94	6.82	1.59	0.59	1.75	3.38	1.63	0.96	1.71	5.83	1.37
English	0.09	3.78	2.40	1.37	0.37	3.47	3.84	1.86	0.20	4.73	4.14	2.26
French	0.05	1.03	1.01	0.71	-	0.86	0.79	0.65	0.06	1.39	1.08	0.90
Other Literature	0.21	1.33	1.61	0.88	0.45	3.31	5.22	2.73	0.36	2.76	4.83	1.97
Philosophy Theology	0.97	2.09	3.32	1.48	0.53	3.11	1.87	1.98	0.71	2.64	2.22	1.64
Other Humanities	0.41	2.09	3.16	1.19	0.67	0.87	1.65	0.94	0.44	2.05	2.83	1.32
Social Science												
Economics	0.03	1.34	1.34	0.34	0.57	3.86	3.94	1.95	0.17	3.24	2.22	1.14
Geography	0.04	1.14	0.75	0.39	-	0.69	0.81	0.32	-	0.95	-	-
Political Science	-	1.41	1.17	0.39	-	1.23	1.63	0.45	-	1.97	1.67	0.83
Psychology	0.44	5.97	6.50	2.07	0.19	2.82	3.36	1.39	0.40	6.14	4.25	2.44
Sociology Criminology	0.13	3.67	1.71	1.26	0.08	1.91	1.70	0.61	0.17	3.69	1.86	1.59
Specialized Admin.	2.42	2.42	3.94	5.09	2.01	1.02	1.53	1.81	2.32	1.57	2.64	2.20
Commerce	4.63	3.69	6.16	3.11	5.32	7.65	4.09	6.09	6.85	5.88	7.02	5.87
Finance	5.87	3.64	1.57	5.10	7.00	9.11	3.05	8.11	9.22	5.84	2.61	7.98
Secretarial Studies	23.97			1.91	20.86			3.73	19.89			1.82
Marketing	2.14	1.11	0.60	1.22	1.95	1.00	-	0.92	2.99	0.97	-	1.52
Law	0.21	2.57	1.91	1.76	0.13	1.30	1.72	1.54	0.30	2.11	1.64	1.59
Other Social Science	3.87	4.17	7.34	2.84	2.20	3.30	3.75	1.76	3.30	2.90	6.19	1.68
Agricultural & BioScience												
Agriculture	1.04	0.63	0.45	0.38	0.95	0.91	1.08	0.61	0.80	0.51	-	-
Biology		2.03	1.91	0.59		1.95	2.76	0.92		3.28	2.69	1.10
Other Life Science	0.14	2.09	1.35	-	0.14	2.63	2.17	-	0.20	2.00	1.28	-
Household Science	2.65			0.90	5.60			1.54	2.14			0.85
Fish Wildlife Manage	0.17			-	0.19			-	0.12			-
Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Engineer&Applied Science												
Architecture		0.34	-	-		0.84	1.26	0.74		0.48	-	-
Other Engineering	-	0.49	0.66	0.21	-	1.50	2.74	1.33		0.78	-	-
Chemical Engineering		0.19	-	-		0.71	0.72	0.29		0.30	-	-
Civil Engineering		0.20	-	-		0.88	1.40	0.61		0.29	-	-
Electrical Engineering		0.11	-	-		0.90	1.56	0.70		0.55	-	-
Mechanical Engineer		0.15	-	-		0.51	1.31	0.54		-	-	-
Forestry	0.06	0.13	-	-	-	-	-	-	-	-	-	-
Landscape Architect	0.25			-	0.24			-	0.26			-
Health Professions												
Medicine		1.50	1.84	5.88		2.56	3.43	10.78		2.33	2.89	12.03
Other Health			7.16				4.09				5.11	
Nursing	10.84	6.24		10.77	11.17	6.41		11.07	8.88	5.17		6.70
Medical Assistant	7.12				7.14				4.56			
Public Health	0.90	0.14		1.32	0.86	-		0.32	0.87	-		0.79
Rehab Medicine	0.23	1.82		1.14	0.47	1.16		1.57	0.16	1.46		1.28
Medical Technician	4.70	0.48		1.52	3.10	1.46		1.73	4.75	0.78		1.26
Math & Physical Sciences												
Mathematics		1.10	0.50	0.30		1.76	2.39	0.66		2.16	1.11	0.78
Computer Science		1.15	-	0.72		2.41	2.71	1.47		3.04	1.33	1.79
Chemistry	0.07	0.41	-	-	0.25	1.57	2.52	0.97	0.18	0.96	1.03	-
Physics	-	-	-	-	-	0.50	0.86	0.29	-	-	-	-
Earth Science	0.06	0.19	0.49	-	-	0.32	0.93	-	-	0.27	-	-
Other Science	0.54	0.89	0.46	0.45	0.68	1.59	0.84	0.80	0.73	1.61	0.89	0.96
Other												
Trades	0.97	-	-	-	1.62	0.17	-	0.29	1.11	-	-	-
Electronic Technology	3.65				4.29				5.58			
Environment Tech	0.13				-				-			
Mechanic	0.52				0.63				0.39			
Transport Technology	0.50				0.87				0.45			
Observations	107,434	36,715	6,952	17,127	48,755	18,918	5,944	11,694	25,382	13,432	3,602	5,537

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

TABLE 4
EARNINGS

1996 CANADIAN CENSUS - FEMALES

Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Education												
Education	16,356	28,871	42,543	26,227	13,275	18,477	25,918	17,896	18,759	29,426	44,567	31,241
Fine & Applied Arts												
Fine Art	12,126	21,335	25,591	20,168	11,356	14,468	17,800	13,784	13,563	18,477	22,317	20,813
Literature & Humanities												
History		26,222	34,982	28,462		16,272	15,764	13,997		29,054	29,105	27,157
Media	21,410	28,916	35,430	28,472	15,616	16,847	28,859	15,030	20,640	27,197	36,410	23,478
English	17,212	27,133	30,230	30,885	12,991	18,335	26,804	16,496	20,020	27,514	33,039	31,373
French	18,418	28,369	31,528	27,932	-	17,283	36,027	13,603	-	31,164	31,139	30,839
Other Literature	19,153	27,475	31,339	22,438	15,971	13,593	21,654	14,243	18,828	27,361	35,452	27,764
Philosophy Theology	15,054	21,676	25,628	18,518	10,941	13,885	16,581	12,851	14,015	22,980	29,054	18,046
Other Humanities	16,912	24,944	35,302	23,580	13,432	20,119	22,631	19,277	18,162	25,837	28,039	26,182
Social Science												
Economics	17,908	31,318	61,272	35,448	13,345	16,259	20,733	18,938	22,994	26,687	32,145	28,487
Geography	16,027	28,442	37,018	30,828	-	18,351	17,810	12,572	-	29,964	-	-
Political Science	-	28,602	40,077	27,186	-	17,051	18,155	15,182	-	26,949	30,440	29,718
Psychology	15,382	25,597	33,466	25,499	17,511	17,547	22,769	17,287	16,584	27,009	32,720	26,602
Sociology Criminology	20,208	27,023	37,826	26,554	15,014	19,802	26,201	17,930	23,056	26,042	32,822	26,696
Specialized Admin.	21,707	30,681	48,383	30,304	17,558	20,024	27,951	19,532	21,841	27,528	49,696	31,498
Commerce	20,213	34,158	55,186	30,638	17,057	17,671	30,677	17,756	22,526	29,279	50,428	27,930
Finance	20,596	37,174	46,350	32,662	17,626	19,078	27,938	18,455	22,608	32,197	46,563	31,905
Secretarial Studies	16,273		19,070		15,456			15,214	18,314			23,541
Marketing	22,964	34,394	51,175	30,266	15,759	18,040	-	17,053	23,820	29,050	-	29,307
Law	21,337	50,659	51,231	43,237	19,286	16,221	26,143	16,814	23,499	42,695	70,115	40,965
Other Social Science	18,034	26,837	37,333	22,142	13,832	19,341	31,096	17,687	19,543	28,151	41,317	25,878
Agricultural & BioScience												
Agriculture	14,324	23,436	31,231	15,882	9,668	12,556	15,009	13,223	13,238	25,717	-	-
Biology		25,298	32,544	26,293		18,472	19,192	15,563		25,560	32,983	29,581
Other Life Science	21,417	24,366	32,440	-	18,789	14,926	17,406	-	22,989	25,054	24,232	-
Household Science	11,932		24,455		10,825			15,132	15,069			27,977
Fish Wildlife Manage	13,562		-	-	10,486		-	-	16,535		-	-
Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Engineer & Applied Science												
Architecture		25,623	-	-		14,108	20,368	14,440		24,500	-	-
Other Engineering	-	35,606	43,404	25,197	-	18,087	25,808	17,079		37,682	-	-
Chemical Engineering		36,818	-	-		17,582	23,222	19,574		41,842	-	-
Civil Engineering		34,949	-	-		16,098	16,899	15,353		31,635	-	-
Electrical Engineering		46,977	-	-		16,886	25,511	15,268		40,288	-	-
Mechanical Engineer		42,168	-	-		15,919	23,893	14,248		-	-	-
Forestry	17,769	29,583	-	-	-	-	-	-	-	-	-	-
Landscape Architect	18,689		-	-	14,396		-	-	21,087		-	-
Health Professions												
Medicine		39,605	57,384	69,849		22,933	29,931	36,984		39,039	64,274	70,055
Other Health			39,973				29,787				50,158	
Nursing		32,535		25,889		20,950	27,571	23,511		25,443	33,390	28,558
Medical Assistant	16,401				16,054				17,017			
Public Health	24,386	34,913		30,361	17,079	-		27,738	26,851	-		35,932
Rehab Medicine	18,115	32,940		34,104	25,379	30,117		29,045	17,377	34,539		32,440
Medical Technician	21,672	27,536		27,170	15,859	22,595		18,354	22,129	28,400		30,810
Math & Physical Sciences												
Mathematics		35,259	42,055	35,245		20,423	28,391	13,957		31,326	35,843	22,532
Computer Science		41,954	-	31,357		26,993	33,451	20,333		38,776	40,096	33,361
Chemistry	27,695	30,272	-	-	14,399	18,538	26,156	18,496	23,920	29,157	40,621	-
Physics	-	-	-	-	-	16,833	29,499	12,609	-	-	-	-
Earth Science	19,748	30,714	44,996	-	-	20,021	20,596	-	-	30,161	-	-
Other Science	22,439	32,595	42,383	29,312	15,637	17,462	20,618	15,887	20,342	26,514	29,458	19,688
Other												
Trades	18,069	-	-	-	14,131	13,434	-	10,465	20,517	-	-	-
Electronic Technology	20,575				16,984				22,679			
Environment Tech	16,222				-				-			
Mechanic	18,781				16,534				17,956			
Transport Technology	18,585				14,163				21,049			
Average	18,070	29,683	40,000	29,527	15,493	18,676	24,807	19,994	19,788	29,247	40,146	34,032

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

Table 3 presents the frequency of observed fields for females by level of education for the Canadian-born, the foreign educated, and Canadian educated immigrants. An immediate difference is obvious on the first line; immigrants, regardless of where they are educated, are much less likely to have education degrees. A few other important differences are worth emphasizing. For example, immigrants are more likely to study non-English, and non-French, literature, more likely to study economics, commerce and finance, and less likely to study specialized administration. Immigrant women are also more likely to study engineering and to pursue medicine and science oriented fields such as mathematical science, and pure and applied sciences including computer science and chemistry. Some of these differences are quite large, for example, foreign educated immigrant females are about 85% more likely to have a bachelor's degree in medicine than are the Canadian-born.⁶ Immigrants who obtain at least some of their education in Canada are just over 25% more likely to have a bachelor's in medicine. Immigrant and Canadian-born women have very different distributions of fields of study.

Men, in table 5, are seen to have a broadly similar pattern of differences in the distribution of fields of study, although there are also differences associated with gender. Men in each of the three groups are much less likely than women to study education or fine arts. Further, some of the differences observed between the Canadian-born and immigrants among females are not observable among males. In particular, immigrant males are no more likely, and perhaps slightly less likely, to pursue commerce and finance than the Canadian-born. Immigrant males are, however, less likely to pursue law. As is the case among women, immigrant men are much more likely to choose disciplines in the sciences and engineering than the Canadian born.

Earnings among females, in table 4, are seen to vary substantially across disciplines, with science and engineering graduates earning somewhat more than those with a social science and humanities background (of course, this is the combined result of the number of hours and weeks worked, and the hourly wage). There are, however, some notable exceptions. For example, among the Canadian-born with a Master's degree, those in economics had the highest earnings. More importantly, a pattern appears to exist such that immigrants educated in Canada have earnings comparable to the Canadian-born, while foreign educated immigrants have much lower earnings across most disciplines.

⁶ Note that the census questions include a special category for those who have a degree in "medicine, dentistry, veterinary medicine and optometry" and these are included in the bachelor's level unless the respondent indicates the presence of a master's degree. These categories are combined and labelled as medicine. This contrasts to tables 1 and 2, where they are isolated into the MD column.

TABLE 5
COLUMN FREQUENCY %

1996 CANADIAN CENSUS - MALES

Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Education												
Education	1.57	13.93	19.03	16.47	1.52	4.80	7.57	5.99	1.39	7.26	12.98	10.07
Fine & Applied Arts												
Fine Art	3.96	1.95	1.62	1.80	5.90	1.94	1.95	2.26	5.94	2.14	1.63	1.97
Literature & Humanities												
History		2.87	2.09	1.40		1.48	1.63	0.85		2.28	2.41	1.13
Media	0.92	1.65	1.80	1.42	0.36	0.99	1.18	1.20	0.84	1.36	1.55	1.16
English	0.05	1.76	1.58	0.87	0.13	1.61	1.23	0.73	-	1.94	1.68	0.70
French	-	-	-	-	-	-	-	-	-	-	-	-
Other Literature	0.07	0.50	0.66	0.54	0.13	1.04	1.31	0.98	-	0.73	1.67	0.65
Philosophy Theology	0.82	2.87	6.53	2.30	0.50	2.62	4.31	1.87	0.54	2.37	4.59	1.57
Other Humanities	0.49	1.28	2.77	0.85	0.48	0.54	1.21	0.40	0.45	1.12	2.07	0.78
Social Science												
Economics	0.07	4.31	3.55	1.48	0.21	4.96	4.39	2.53	0.12	5.10	3.33	2.08
Geography	0.10	2.33	1.10	0.96	0.07	0.65	0.60	0.48	-	1.72	0.81	0.82
Political Science	0.04	2.51	1.70	0.96	-	1.51	1.29	0.69	-	2.51	1.87	0.92
Psychology	0.11	2.56	2.70	1.19	-	0.84	0.99	0.39	0.10	2.55	2.04	0.98
Sociology Criminology	0.13	1.78	1.27	1.29	0.06	0.89	0.65	0.67	0.20	1.72	1.04	0.96
Specialized Admin.	2.04	3.55	5.19	6.00	1.84	1.10	1.55	2.06	1.98	1.20	2.04	2.53
Commerce	3.46	8.26	14.21	7.38	2.76	8.50	8.69	6.65	4.59	7.64	13.18	7.60
Finance	3.41	7.11	3.85	12.13	4.20	8.90	4.54	9.25	4.79	7.19	3.67	11.43
Secretarial Studies	1.27	-	-	-	1.60	-	-	-	0.86	-	-	-
Marketing	2.01	1.58	0.89	2.18	1.44	1.04	0.69	1.35	2.20	1.04	0.80	1.74
Law	0.14	4.76	3.14	4.65	0.11	2.24	1.77	2.17	0.13	3.20	2.57	2.67
Other Social Science	3.62	1.22	2.41	1.09	1.13	0.90	1.33	0.60	2.36	0.72	1.87	0.70
Agricultural & BioScience												
Agriculture	1.61	1.53	0.89	3.50	2.20	1.64	1.44	1.61	1.43	0.73	0.61	1.38
Biology		2.13	1.91	0.91		1.34	1.03	0.60		2.58	1.55	0.99
Other Life Science	0.11	0.49	0.61	-	0.10	0.57	0.83	-	0.11	0.58	0.63	-
Household Science	2.03	-	-	-	3.66	-	-	0.43	2.28	-	-	-
Fish Wildlife Manage	1.04	-	-	-	0.92	-	-	-	0.56	-	-	-
Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Engineer & Applied Science												
Architecture		1.10	0.87	0.68		2.25	2.25	2.47		1.53	1.20	1.55
Other Engineering	0.05	5.05	3.87	2.51	-	8.95	9.30	8.45	-	7.44	8.07	5.24
Chemical Engineering		1.05	0.64	0.25		1.50	1.87	0.67		1.37	1.35	0.48
Civil Engineering		2.67	1.76	1.15		5.49	5.77	4.22		2.93	2.70	1.94
Electrical Engineering		2.84	1.61	1.47		7.60	6.83	5.43		5.71	4.11	3.09
Mechanical Engineer		3.02	1.22	0.85		6.31	5.82	5.42		3.83	2.59	2.45
Forestry	0.52	0.96	0.41	0.67	0.11	0.37	0.43	0.30	0.32	0.53	-	-
Landscape Architect	0.91	-	-	-	0.63	-	-	-	1.55	-	-	-
Health Professions												
Medicine		1.18	2.44	14.99		1.79	2.99	17.92		1.76	3.44	20.55
Other Health			0.68	-			0.87	-			0.67	-
Nursing	0.44	0.34	-	0.46	0.46	0.42	-	0.71	0.42	0.30	-	-
Medical Assistant	0.56	-	-	0.00	0.51	-	-	-	0.46	-	-	-
Public Health	3.47	-	-	0.36	3.50	-	-	-	3.30	-	-	-
Rehab Medicine	0.03	0.26	-	-	0.06	0.23	-	0.42	-	-	-	-
Medical Technician	1.50	0.20	-	1.31	1.26	0.64	-	1.30	1.52	0.33	-	1.21
Math & Physical Sciences												
Mathematics		2.02	1.30	0.76		2.20	2.05	0.92		2.74	2.13	1.57
Computer Science		3.23	1.58	1.95		4.68	4.83	2.91		6.55	3.11	3.46
Chemistry	0.17	1.12	0.80	0.52	0.26	2.15	1.87	1.17	0.26	1.87	1.22	0.99
Physics	-	0.80	0.92	0.23	0.07	1.46	1.71	0.64	-	1.30	1.46	-
Earth Science	0.22	1.25	1.62	0.48	0.18	1.02	1.86	0.50	0.17	1.20	1.76	-
Other Science	0.40	1.51	0.54	0.76	0.41	1.93	0.71	0.85	0.54	2.33	0.78	1.43
Other												
Trades	26.22	0.12	-	0.49	27.37	0.55	-	1.25	23.50	-	-	0.73
Electronic Technology	13.05	-	-	-	12.54	-	-	-	16.85	-	-	-
Environment Tech	0.81	-	-	-	0.38	-	-	-	0.45	-	-	-
Mechanic	18.28	-	-	-	16.95	-	-	-	14.59	-	-	-
Transport Technology	4.25	-	-	-	5.91	-	-	-	4.75	-	-	-
Observations	116,472	37,163	10,200	14,543	57,358	20,429	9,313	12,591	29,933	14,795	5,402	6,448

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

TABLE 6
EARNINGS

1996 CANADIAN CENSUS - MALES

Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Education												
Education	26,235	38,373	50,960	41,436	20,407	30,401	35,294	25,707	26,868	41,750	54,758	41,817
Fine & Applied Arts												
Fine Art	25,767	27,839	43,646	28,870	22,971	22,708	28,649	23,133	27,528	28,957	33,128	32,145
Literature & Humanities												
History		41,448	54,125	39,981		28,406	34,667	18,675		37,667	47,840	45,004
Media	30,751	36,319	40,180	34,072	26,775	23,200	35,517	20,996	32,586	38,512	41,752	36,130
English	23,642	35,389	46,184	40,445	25,019	30,046	34,751	23,705	-	35,103	38,381	37,621
French	-	-	-	-	-	-	-	-	-	-	-	-
Other Literature	26,013	36,372	36,463	31,870	23,892	18,331	30,291	23,215	-	38,485	43,821	31,800
Philosophy Theology	26,649	32,051	34,158	28,013	21,869	26,845	30,028	25,126	27,073	34,629	33,031	34,758
Other Humanities	26,573	39,441	46,273	31,534	20,020	30,532	35,199	27,239	29,882	35,192	49,788	32,648
Social Science												
Economics	31,093	52,009	63,522	50,758	28,042	35,146	35,435	26,229	53,351	43,765	62,587	46,934
Geography	34,383	40,282	47,888	39,565	27,162	30,137	36,554	26,072	-	43,701	45,874	36,217
Political Science	34,785	42,815	50,503	43,556	-	27,883	33,121	24,563	-	41,239	42,188	32,108
Psychology	26,078	40,775	45,613	35,769	-	30,203	46,671	27,378	38,457	40,124	46,477	41,663
Sociology Criminology	37,945	40,231	45,496	40,613	20,154	27,494	27,965	20,884	34,664	34,454	42,031	37,582
Specialized Admin.	32,939	47,294	65,215	44,287	26,365	30,025	34,755	29,011	32,703	41,028	62,590	42,462
Commerce	38,558	57,232	91,664	52,823	30,622	29,472	51,760	27,887	36,980	48,259	76,390	47,247
Finance	39,480	58,630	73,415	57,700	31,082	34,676	45,524	38,166	40,630	54,054	68,206	53,392
Secretarial Studies	27,131			-	22,473				33,753			
Marketing	39,105	47,833	64,502	44,786	31,957	28,097	47,661	38,730	40,967	46,217	53,803	41,911
Law	37,749	79,892	97,403	76,977	33,121	34,961	36,910	32,770	34,931	69,433	79,791	71,710
Other Social Science	34,801	38,463	51,991	31,908	25,266	23,908	35,565	25,081	35,867	36,761	48,817	27,466
Agricultural & BioScience												
Agriculture	23,480	38,869	50,637	26,675	19,729	23,349	29,530	24,042	24,990	36,165	44,948	27,386
Biology		40,419	46,096	42,972		28,847	39,876	28,878		39,092	47,045	42,539
Other Life Science	32,625	38,249	47,300	-	23,400	28,160	30,291	-	31,403	35,183	54,007	-
Household Science	22,976			-	22,916			22,674	26,866			-
Fish Wildlife Manage	25,508			-	25,706			-	-			-
Field	Canadian Born				Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS	College	Bachelor	Master's	Othr PS
Engineer & Applied Science												
Architecture		41,290	39,043	36,943		27,044	35,329	27,348		39,333	41,650	39,177
Other Engineering	21,048	57,959	68,002	46,365	-	39,556	48,383	32,854	-	52,752	58,105	50,273
Chemical Engineering		64,871	70,182	47,505		41,863	49,932	45,736		58,980	63,266	40,689
Civil Engineering		54,159	62,832	42,886		31,868	38,658	28,501		51,980	58,494	37,150
Electrical Engineering		58,445	67,963	46,603		36,298	45,087	32,174		48,649	59,856	43,014
Mechanical Engineer		55,987	65,977	61,773		34,726	43,951	34,694		56,115	63,404	41,112
Forestry	31,727	52,581	68,890	41,235	25,496	34,586	23,908	24,855	39,294	42,206	-	-
Landscape Architect	31,683			-	27,239			-	32,300			-
Health Professions												
Medicine		54,367	106,756	111,348		36,058	70,036	84,065		50,249	104,611	110,982
Other Health			57,263				56,105				57,183	
Nursing	33,199	35,937		33,978	30,047	29,809		28,862	29,284	33,011		-
Medical Assistant	23,548				23,246				25,870			
Public Health	33,188	-		39,434	27,208	-		-	38,373	-		-
Rehab Medicine	28,244	44,718		-	31,471	48,833		53,407	-	-		-
Medical Technician	32,859	59,824		60,595	27,474	27,788		33,995	36,429	35,004		64,395
Math & Physical Sciences												
Mathematics		56,053	62,013	49,527		35,283	43,519	26,960		50,313	53,186	53,085
Computer Science		51,866	59,237	43,220		36,079	40,206	30,133		44,512	58,040	36,144
Chemistry	39,952	51,405	50,429	47,643	29,793	36,269	35,662	31,398	42,325	50,617	50,358	45,481
Physics	-	46,831	55,204	36,379	29,839	34,497	40,819	28,133	-	45,810	53,343	-
Earth Science	37,815	50,517	54,768	49,407	33,769	39,672	39,179	30,747	42,265	49,317	54,350	-
Other Science	34,806	50,153	50,564	45,704	27,339	29,252	39,141	26,951	33,472	43,421	50,521	43,315
Other												
Trades	31,025	45,303	-	33,791	29,128	28,006	-	28,841	35,650	-	-	44,575
Electronic Technology	36,259				29,812				36,344			
Environment Tech	33,838				31,452				34,671			
Mechanic	31,689				29,378				34,812			
Transport Technology	34,042				32,180				38,921			
Average	32,262	48,864	61,553	55,967	28,205	32,716	41,479	39,930	35,066	46,155	58,275	58,292

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

Turning to male earnings in table 6, education, fine arts, humanities and agricultural and biological sciences are seen, in general, to have lower annual earnings for all three population subgroups. Social sciences are extremely diverse, while engineering, health, and math and physical sciences tend to be somewhat more uniformly higher. Once again, foreign educated immigrants earn less than the other two, which are broadly similar though the estimates do vary. Some fields, such as law, seem to have a particularly large difference depending upon where the education was obtained. Immigrants educated in law outside of Canada receive massively less, for example about \$35,000 less per year at the bachelor's level, than those educated in Canada.

IV. Regression Analysis of Earnings by Field of Study

The descriptive statistics in tables 3 through 6 do not control for issues of relevance to the labour market such as differences in age, or place of residence, which clearly affect earnings and differ substantially across the subpopulations of interest. Further, many questions of interest focus on those who participate in the workforce. Therefore, in accord with the previous literature, this section focuses on those with positive earnings and weeks of work. If the distribution of field of study is changed by policy, then, in terms of earnings, this is the relevant group to study (though the proportion of each group that works may also be an issue). These regressions control for observable characteristics to get a better picture of field of study effects for similar individuals. The dependent variable is the natural logarithm of annual earnings. In addition to the independent variables observed in the tables, these regressions also contain 9 province of residence indicators (that is, variables where each equals one if the case is true, and zero otherwise; sometimes they are called dummy variables), 23 Census Metropolitan Area indicators, along with 3 census area indicators for British Columbia, Ontario, and Québec that capture a set of smaller urban centres (i.e., each is set to one if the person lives in a small urban centre) and a quartic (fourth order polynomial) in age. Note that the regressions do not control for occupation. This is appropriate in this context since occupation is endogenous. By omitting occupation, these regressions provide a better measure of a “pure” field of study effect. This also allows the value that follows from some fields having graduates that are more flexible than others and being able to be employed across a variety of occupations to be observed. Baker and Benjamin (1994) omit occupation for a similar reason, though they are not looking at field of study.

Tables 7 through 10 each contain selected results from two distinct regressions, one for each sex. Each regression includes the Canadian born, and the two immigrant groups, thus allowing comparisons. Separate regressions are run for each of: Bachelor's degree (tables 7 and 8), College certificate or diploma (table 9), and Master's degree (table 10). The tables are formatted to make the output as parsimonious as possible given the need to display results for a large number of fields of study. Tables 7 and 8 display two distinct parts of the same two regressions: table 7 presents selected background coefficients, and table 8 shows those for field of study. For the regressions in tables 9 and 10 the background coefficients are suppressed since they have a similar pattern to those in table 7 and they are not the focus of this study. Each regression has the following format:

$$\ln(\text{earnings}) = b_0 + b_F FI + b_C CI + b_{CB} X + b_{FI} FI * X + b_{CI} CI * X + f_{CB} Field + f_{FI} FI * Field + f_{CI} CI * Field + \varepsilon \quad (1)$$

where the b 's and f 's are coefficients to be estimated, FI and CI are indicator (zero or one) variables indicating whether the observation is a foreign educated, or Canadian educated, immigrant. The vector X contains the background (non-field of study) variables including: age, place of residence,

visible minority, age at immigration and language. Some of these background variables, the set of arrival cohort, age at immigration, and source region indicators, are unique to immigrants, in which case they are set to zero for the Canadian-born. This setup implies that, for each variable that is common to the three groups, both sets of immigrant coefficients estimate differences from the “base case” Canadian-born one. However, those coefficients, such as age at immigration, that are unique to immigrants, do not have an interpretation that involves deviations. Note that, similarly to the other variables that are in common, the immigrant *Field* coefficients are also defined as deviations, or differences, from the Canadian-born average. The total effect for immigrants is the sum of the two coefficients.⁷

IV.1 Bachelor's Degree Holders

The first two regressions compare each immigrant group (Canadian and foreign educated) to the Canadian-born, where all those included in the regressions have exactly a bachelor's degree. Table 7 presents the interesting background variables' coefficients. Regression results for females are on the left, and those for males are on the right. Only the Canadian educated immigrant females' indicator variable is statistically significantly different from the overall regression intercept (which is effectively the intercept for the Canadian-born), as seen in the first row. Note that this indicator variable reflects the (ln)earnings for the combination of the omitted groups: that is, those who are not visible minorities, speak English, arrived between 1961 and 1965 at age 16 to 20, from the region of origin that includes the United States, the United Kingdom, Australia, New Zealand and other English speaking countries, and the like. This suggests that controlling for the observables in the regression, the male and foreign educated immigrant's earnings are comparable. Of course, controlling for other factors is not innocuous, as will be seen in the predictions in tables 11 and 12. Strikingly, the visible minority indicator is effectively zero for the Canadian-born females, but large, statistically significant and negative for the Canadian-born males. Neither Canadian educated immigrant visible minority coefficient differs from that for the Canadian-born. However, both foreign educated visible minority coefficients are negative and statistically significant. Like the visible minority indicators, the language variables appear to differ across the sexes. Relative to those who speak only English, the omitted group, Canadian-born females who speak French have a premium, whereas the equivalent males have a deficit. Further, immigrant males have an even larger deficit, while there is no additional gain (or loss) for the females. Females also have a premium for being bilingual, while males who are bilingual do not have earnings that differ, on average, from those who speak only English. Most strikingly, males who speak neither language appear to have no earnings penalty, whereas the foreign educated females have a large one. Of course, as seen in the descriptive statistics, there are very few observations in this group, for example, Canadian-born workers with bachelor's degrees who speak neither official language.

⁷ We explored a variety of related specifications, for example, forcing the Canadian-born and each immigrant group to have common field of study coefficients, or suppressing the field of study coefficients altogether, but there were no important changes from the current findings that resulted. In particular, the age at immigration, cohort and source country coefficients were relatively stable.

TABLE 7 - 1996 BACHELORS: EARNINGS

Variables	Females			Males		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant/Intercept	9.783*** [0.017]	-0.039 [0.153]	-0.112** [0.046]	9.814*** [0.016]	0.077 [0.173]	0.007 [0.042]
Vismin	0.007 [0.022]	-0.083* [0.047]	-0.021 [0.043]	-0.152*** [0.019]	-0.119*** [0.035]	0.043 [0.036]
Language Knowledge						
French	0.045*** [0.015]	-0.014 [0.069]	0.082 [0.092]	-0.063*** [0.015]	-0.151** [0.062]	-0.195* [0.101]
Bilingual	0.061*** [0.009]	0.097*** [0.028]	0.010 [0.023]	0.004 [0.008]	0.021 [0.022]	-0.004 [0.019]
Neither	0.313 [0.277]	-0.594** [0.299]	-0.737 [0.555]	-0.282 [0.380]	0.060 [0.387]	0.010 [0.572]
Arrival Cohort						
i9195		-0.606*** [0.063]	-0.399*** [0.080]		-0.610*** [0.050]	-0.139* [0.080]
i8690		-0.242*** [0.064]	-0.220*** [0.055]		-0.283*** [0.050]	-0.192*** [0.048]
i8185		-0.160** [0.065]	-0.135*** [0.048]		-0.195*** [0.051]	-0.046 [0.041]
i7680		-0.082 [0.064]	-0.039 [0.042]		-0.086* [0.051]	-0.028 [0.035]
i7175		-0.053 [0.063]	0.003 [0.038]		-0.113** [0.050]	-0.061** [0.031]
i6670		0.038 [0.065]	0.023 [0.037]		-0.069 [0.051]	-0.010 [0.030]
i5660		0.100 [0.120]	-0.014 [0.044]		-0.144* [0.087]	-0.001 [0.033]
i2555		-0.038 [0.274]	0.062 [0.043]		-0.559*** [0.192]	-0.001 [0.032]
Age-at-Immigration						
ia05	-	-	0.047 [0.031]	-	-	0.067*** [0.025]
ia610	-	-	0.035 [0.031]	-	-	0.069*** [0.025]
ia1115	-	-	0.034 [0.031]	-	-	0.040 [0.025]
ia2125	-	-	-	-	-	-
ia2630	-0.129 [0.140]	-0.044 [0.031]	-	0.275* [0.165]	-0.052** [0.026]	-
ia3135	-0.176 [0.140]	-0.137 [0.148]	-	0.213 [0.165]	-0.136 [0.101]	-
ia3640	-0.278** [0.140]	-	-	0.141 [0.165]	-	-
ia4145	-0.368*** [0.142]	-	-	0.081 [0.165]	-	-
ia4650	-0.435*** [0.144]	-	-	-0.037 [0.166]	-	-
ia5165	-0.537*** [0.152]	-	-	-0.010 [0.169]	-	-
	-0.461*** [0.167]	-	-	-0.037 [0.172]	-	-
Region of Origin						
Western Europe	-0.009 [0.051]	0.013 [0.033]	-	-0.187*** [0.042]	-0.056** [0.025]	-
Southern Europe	-0.104 [0.099]	0.087** [0.039]	-	-0.409*** [0.068]	-0.055* [0.028]	-
Other Europe	-0.188*** [0.039]	-0.049 [0.041]	-	-0.479*** [0.030]	-0.076** [0.032]	-
India & Pakistan	-0.242*** [0.051]	-0.173*** [0.050]	-	-0.297*** [0.038]	-0.106** [0.043]	-
China	0.066 [0.051]	0.080* [0.047]	-	-0.202*** [0.038]	-0.095** [0.039]	-
Japan & Korea	-0.158** [0.066]	-0.160** [0.080]	-	-0.207*** [0.049]	-0.205*** [0.071]	-
South East Asia	0.014 [0.048]	0.006 [0.049]	-	-0.311*** [0.038]	-0.094** [0.043]	-
Africa	-0.025 [0.050]	0.014 [0.046]	-	-0.251*** [0.036]	-0.013 [0.037]	-
Mexico & S. America	-0.031 [0.052]	-0.011 [0.043]	-	-0.214*** [0.039]	-0.107*** [0.037]	-
Other	-0.163*** [0.054]	-0.138** [0.060]	-	-0.419*** [0.038]	-0.142*** [0.045]	-
Field of Study Controls						
Fields		Yes			Yes	
Fields*Immig		Yes			Yes	
Observations		120672			132974	
R-squared		0.099			0.167	

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%;

*** 1%. Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

The arrival cohort coefficients have a similar pattern to that seen in previous work starting with Chiswick's (1978) seminal article. That is, the more recent entry cohorts have lower earnings. Of course, this is a mixture of time in the country and any changes in cohort composition, or labour market opportunities, that may have occurred.⁸ Interestingly, the profile is steeper for the foreign educated, suggesting that Canadian education may alleviate some of the cohort effects. Since the omitted group is those who immigrated between 1961 and 1965, there is evidence that males who immigrated prior to that (and remain in the labour market in 1996) have poorer outcomes. Age at immigration has a profile such that those who immigrate at a young age have better labour market outcomes. Note that the omitted category for both immigrant groups is those who arrive between the ages of 16 and 20. Region of origin is also correlated with earnings. The omitted category are those who immigrate from the industrialized, English speaking countries: the UK, US, Australia, New Zealand and related. Females are for the most part much less affected by region of origin; in contrast, it has an important impact on males. For both sexes though, the coefficients are much smaller for those educated in Canada.

Some results from regressions that are not presented are quite interesting. Consider the same control variables presented in table 7. Across the various immigrant groups, there appears to be no appreciable correlation between field of study and these variables that is also correlated with earnings. That is, when the set of field indicator variables is removed, there is no substantial change in any of the other coefficients presented other than immigrant status. This lack of a correlation is remarkable. Further, when field of study is removed completely from the regression there is neither an increase, nor a decline, across arrival cohort coefficients as a result. If the immigrant admission system were increasingly selecting individuals because of their having valuable (or less valuable) fields of study, then these coefficients would be altered when the field of study variables are added to the regression. But this does not occur. Rather, field of study appears to be completely neutral in relation to arrival cohort effects. It is also neutral with respect to age at immigration. Further, and perhaps most surprisingly, it is not correlated with region of origin.

Turning to the field of study coefficients in table 8, however, it is clear that while field may not be correlated with the other regressors, it clearly captures an important source of earnings variation across individuals. The first column for each sex contains the coefficients for the Canadian-born, and the subsequent two columns' coefficients are deviations from that Canadian-born coefficient for each immigrant group. Thus, on average, immigrants in a particular field of study obtain earnings commensurate with the coefficient for the Canadian-born, plus the relevant for their difference from the Canadian-born. Note that a degree from an education faculty is the omitted field of study, so it shifts the immigrant indicator variable. That indicator, and the overall intercept, are presented in the first row of the table; this row replicates a row in table 7. The coefficients suggest a strong pattern of earnings differences across fields of study, with those in fine and applied arts, humanities, the traditional social sciences (except economics), and agriculture and biological sciences earning less than those with education degrees.⁹ In contrast, those with administration, business and law degrees

⁸ Since this is cross-sectional data, the arrival cohort, and age at immigration, coefficients measure a changes in the unobserved characteristics and differing labour market environments that affect the earnings of immigrants inasmuch as they are correlated with earnings as well as economic integration effects or those related to age at immigration itself. Also, these have the interpretation of differences from what would be expected for a Canadian-born person of the same age. For a discussion of the identification issues see Schaafsma and Sweetman (2001). See also Borjas (1985, 1995), Baker and Benjamin (1994), and Bloom, Grenier and Gunderson (1995).

⁹ The term "traditional social sciences" is used to refer to those disciplines usually in social science faculties in universities, for example, economics, geography, political science and the like. This contrasts with the broader

earn more, on average, as do those with engineering and applied science, health science and natural science degrees.

census definition, which includes professional fields within business, law and administration. We observe that the findings for these two sets of fields are quite different.

TABLE 8 - 1996 BACHELORS: EARNINGS

Variable	Female			Male		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant/Intercept	9.783*** [0.017]	-0.039 [0.153]	-0.112** [0.046]	9.814*** [0.016]	0.077 [0.173]	0.007 [0.042]
Fine & Applied Arts						
Fine Arts	-0.480*** [0.018]	0.251*** [0.051]	0.017 [0.055]	-0.515*** [0.021]	0.141** [0.061]	0.004 [0.061]
Lit. & Humanities						
History	-0.162*** [0.024]	0.084 [0.066]	0.123* [0.071]	-0.139*** [0.017]	-0.039 [0.066]	-0.048 [0.059]
Media Studies	-0.088*** [0.023]	0.099 [0.071]	-0.015 [0.075]	-0.205*** [0.022]	-0.004 [0.079]	0.024 [0.073]
English	-0.201*** [0.017]	0.211*** [0.054]	0.018 [0.049]	-0.246*** [0.021]	0.036 [0.063]	-0.128** [0.063]
French	-0.104*** [0.031]	-0.043 [0.102]	0.175** [0.086]	-0.165*** [0.051]	0.013 [0.156]	0.086 [0.191]
Other Literature	-0.224*** [0.028]	0.097 [0.062]	0.005 [0.066]	-0.210*** [0.040]	-0.107 [0.086]	0.087 [0.098]
Philosophy	-0.264*** [0.024]	0.255*** [0.060]	0.113* [0.067]	-0.325*** [0.018]	0.160*** [0.053]	0.051 [0.058]
Other Humanities	-0.161*** [0.025]	0.204** [0.099]	0.011 [0.077]	-0.324*** [0.032]	0.069 [0.119]	-0.078 [0.108]
Social Science						
Economics	0.054** [0.028]	0.093* [0.057]	-0.093 [0.062]	0.101*** [0.015]	-0.117*** [0.044]	-0.062 [0.044]
Geography	-0.148*** [0.025]	0.125 [0.099]	-0.023 [0.085]	-0.044*** [0.017]	0.089 [0.080]	0.037 [0.057]
Political Science	-0.068*** [0.027]	0.066 [0.085]	0.004 [0.071]	-0.028 [0.018]	-0.093 [0.065]	-0.043 [0.056]
Psychology	-0.167*** [0.014]	0.150*** [0.056]	0.042 [0.045]	-0.118*** [0.018]	-0.056 [0.078]	-0.036 [0.056]
Sociology	-0.126*** [0.017]	0.130** [0.066]	0.030 [0.055]	-0.069*** [0.021]	-0.110 [0.080]	-0.025 [0.066]
Public Admin.	0.128*** [0.021]	0.026 [0.085]	-0.079 [0.078]	0.161*** [0.016]	-0.087 [0.072]	-0.080 [0.074]
Commerce	0.158*** [0.017]	-0.043 [0.047]	-0.019 [0.058]	0.199*** [0.012]	-0.217*** [0.039]	-0.156*** [0.039]
Finance	0.226*** [0.017]	-0.087** [0.039]	-0.063 [0.047]	0.253*** [0.012]	-0.161*** [0.038]	-0.073* [0.040]
Marketing	0.134*** [0.029]	0.173* [0.093]	-0.053 [0.096]	0.150*** [0.022]	-0.090 [0.075]	-0.086 [0.078]
Law	0.359*** [0.020]	-0.296*** [0.083]	-0.109 [0.067]	0.439*** [0.014]	-0.364*** [0.056]	-0.130*** [0.050]
Other Soc Sci	-0.007 [0.016]	0.132** [0.052]	-0.003 [0.058]	-0.036 [0.025]	-0.055 [0.080]	-0.100 [0.091]
Agri. & Bio Science						
Agriculture Sci	-0.221*** [0.041]	0.124 [0.101]	0.298** [0.139]	-0.037 [0.024]	-0.121* [0.065]	-0.169* [0.095]
Biological Sci	-0.112*** [0.023]	0.231*** [0.068]	0.108* [0.060]	-0.014 [0.019]	-0.236*** [0.068]	-0.055 [0.055]
Other Life Sci	-0.138*** [0.023]	0.105* [0.061]	-0.037 [0.071]	-0.065 [0.040]	-0.008 [0.102]	-0.077 [0.108]
Eng. & Applied Sci						
Architecture	-0.290*** [0.052]	0.202* [0.110]	0.157 [0.146]	-0.094*** [0.026]	-0.095 [0.059]	-0.157** [0.069]
Other Engineering	0.112** [0.046]	0.152* [0.086]	0.319*** [0.113]	0.299*** [0.014]	-0.106*** [0.037]	-0.037 [0.039]
Chemical Eng.	0.400*** [0.070]	-0.227* [0.123]	0.315* [0.181]	0.465*** [0.027]	-0.190*** [0.068]	-0.150*** [0.072]
Civil Engineering	0.158*** [0.067]	-0.060 [0.113]	0.144 [0.177]	0.278*** [0.018]	-0.213*** [0.044]	-0.043 [0.053]
Electrical Eng.	0.520*** [0.084]	-0.155 [0.127]	0.115 [0.146]	0.408*** [0.017]	-0.199*** [0.041]	-0.148*** [0.044]
Mechanical Eng.	0.307*** [0.068]	-0.108 [0.120]	-0.201 [0.177]	0.329*** [0.016]	-0.223*** [0.039]	-0.052 [0.044]
Forestry	0.051 [0.091]	-0.043 [0.282]	0.020 [0.293]	0.288*** [0.028]	-0.486*** [0.118]	-0.091 [0.112]
Health Science						
Medicine	0.372*** [0.028]	-0.069 [0.063]	-0.028 [0.067]	0.327*** [0.025]	-0.105* [0.063]	0.056 [0.066]
Nursing	0.157*** [0.014]	0.177*** [0.040]	0.098** [0.047]	0.054 [0.051]	0.089 [0.117]	-0.176 [0.146]
Public Health	0.014 [0.089]	0.654** [0.282]	-0.191 [0.239]	0.271** [0.131]	-0.151 [0.348]	0.116 [0.329]
Medical Techn.	-0.029 [0.045]	0.170** [0.082]	0.007 [0.112]	0.018 [0.063]	0.010 [0.110]	-0.089 [0.142]
Natural Science						
Mathematics	0.191*** [0.031]	-0.054 [0.074]	-0.116 [0.072]	0.212*** [0.020]	-0.128** [0.057]	-0.048 [0.055]
Computer Sci	0.333*** [0.029]	0.148** [0.064]	0.079 [0.064]	0.257*** [0.016]	0.051 [0.045]	-0.023 [0.043]
Chemistry	-0.003 [0.050]	0.066 [0.085]	0.146 [0.107]	0.140*** [0.027]	-0.087 [0.060]	-0.089 [0.065]
Physics	0.178 [0.114]	-0.029 [0.171]	0.211 [0.221]	0.096*** [0.031]	-0.091 [0.069]	-0.006 [0.077]
Earth Sci	0.079 [0.067]	0.132 [0.161]	0.000 [0.192]	0.134*** [0.025]	-0.030 [0.078]	-0.120 [0.076]
Other Science	0.042 [0.035]	0.055 [0.077]	-0.030 [0.084]	0.077*** [0.023]	-0.148*** [0.060]	-0.049 [0.059]
Trades & Technology						
Trades	-0.016 [0.362]	-0.363 [0.457]	0.242 [0.770]	0.323** [0.150]	-0.314 [0.199]	-0.455 [0.309]
Observations	120672			132974		
R-squared	0.099			0.167		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%

For immigrant females the differences from the Canadian-born are quite varied. There are relatively few statistically significant differences between the Canadian-born and Canadian educated immigrants, but where there are differences the immigrants tend to have higher earnings. In contrast, foreign educated immigrants have earnings that are sometimes above, and sometimes below, those of the Canadian-born in the same field. Interestingly, the differences tend to offset the low earnings of the Canadian-born in fine and applied arts, and literature and humanities (though this is not universal), but be more mixed in the high-paying engineering and applied sciences, health professions, and natural sciences. Overall, there appears to be less variance across fields for the foreign educated immigrants than for the Canadian-born females. Recall that each immigrant is also affected by the relevant immigrant coefficients seen in table 7. For the males the pattern is somewhat different. The coefficients for the Canadian educated immigrants are, like those for the females, not different from zero, which suggests that the field premium is the same as that for the Canadian-born, but all the differences are negative, not positive. Coefficients for the male foreign born fields also tend to be negative, when statistically significant, but are occasionally positive. In general, the coefficients tend to offset the extremes of the Canadian-born distribution, being negative for high earning fields, and positive for low earnings ones, though the number of negative coefficients is larger. Overall, for both sexes, the Canadian educated immigrants have returns to field of study that are more similar to the Canadian-born than to the foreign educated. However, for all except the Canadian educated immigrant females, the premiums of the highest paying fields tend to be muted relative to the Canadian-born. Conversely, immigrants in many of the lowest paying fields have higher earnings than their Canadian-born counterparts. It is worth noting that medicine shows very small differences across the groups, despite the much higher likelihood of immigrants having medical degrees, while there is a very substantial deficit for immigrants with law degrees.

IV.2 College Degree Certificate and Diploma Holders

Unlike the set of regressions for those with a bachelor's degree, we only present the field of study and immigrant/intercept coefficients for those with college certification, and these are in table 9. Among the Canadian educated immigrants with a college degree, most of the immigrant field of study coefficients are not statistically different from zero, although there are a few notable exceptions, such as psychology and earth sciences, which have substantial premia for the female immigrants. Thus the Canadian educated immigrants have quite similar earnings premia across field of study as the Canadian-born. The foreign educated have greater differences from the Canadian-born, but most coefficients are still not different from zero. Unlike the females, for the males almost none of the statistically significant immigrant coefficients are positive. Perhaps somewhat more strongly than that seen at the bachelor's level, there is a broad pattern (though there are exceptions) whereby those fields that are higher earnings among the Canadian-born have a negative coefficient for both immigrant groups when the coefficient is different from zero. Thus, while the ranking of fields according to earnings is not substantially altered, the difference between the lowest and highest earning fields tends to be less extreme among the immigrant population.

TABLE 9 - 1996 COLLEGE: EARNINGS

Variable	Female			Male		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant/Intercept	9.410*** [0.014]	0.017 [0.051]	-0.032 [0.045]	9.601*** [0.019]	0.250*** [0.067]	-0.014 [0.065]
Fine & Applied Arts						
Fine Arts	-0.203*** [0.014]	0.069* [0.040]	0.080* [0.046]	-0.112*** [0.020]	-0.046 [0.057]	-0.046 [0.068]
Humanities						
Media Studies	0.141*** [0.022]	-0.138* [0.081]	0.070 [0.084]	0.073*** [0.023]	-0.004 [0.091]	-0.010 [0.086]
Literature	-0.002 [0.035]	0.118 [0.074]	0.191* [0.103]	-0.067 [0.048]	0.097 [0.107]	-0.047 [0.152]
Philosophy	-0.164*** [0.022]	-0.082 [0.087]	-0.041 [0.095]	0.000 [0.024]	-0.069 [0.077]	-0.061 [0.097]
Othr. Humanities	-0.048 [0.051]	0.099 [0.122]	0.102 [0.152]	-0.076 [0.048]	-0.159 [0.135]	0.003 [0.186]
Social Science						
Economics	0.109 [0.110]	0.069 [0.137]	0.106 [0.208]	0.162*** [0.062]	-0.026 [0.119]	0.050 [0.176]
Geography	0.148** [0.065]	-0.403 [0.279]	0.117 [0.232]	0.184*** [0.041]	0.076 [0.153]	-0.082 [0.151]
Political Science	0.205 [0.127]	-0.026 [0.248]	-0.067 [0.405]	0.052 [0.078]	0.205 [0.250]	-0.437* [0.260]
Psychology	-0.160*** [0.032]	0.385*** [0.127]	0.206* [0.124]	-0.079 [0.050]	0.122 [0.224]	0.229 [0.184]
Sociology Crim	0.152** [0.054]	0.058 [0.200]	0.123 [0.177]	0.319*** [0.047]	-0.443** [0.192]	0.028 [0.141]
Public Admin	0.219*** [0.016]	0.008 [0.054]	0.037 [0.062]	0.172*** [0.020]	-0.105* [0.063]	0.000 [0.074]
Commerce	0.196*** [0.013]	-0.007 [0.037]	0.053 [0.043]	0.271*** [0.018]	-0.110** [0.055]	-0.109* [0.064]
Finance	0.172*** [0.012]	-0.016 [0.033]	0.053 [0.039]	0.274*** [0.018]	-0.063 [0.052]	-0.055 [0.064]
Secretary Stud.	0.070*** [0.009]	0.073** [0.029]	0.039 [0.035]	0.103*** [0.026]	-0.058 [0.076]	0.169* [0.100]
Law	0.245*** [0.044]	0.140 [0.164]	-0.059 [0.135]	0.294*** [0.046]	-0.158 [0.139]	-0.128 [0.175]
Other Social Sci	0.096*** [0.014]	-0.092* [0.054]	0.021 [0.053]	0.335*** [0.018]	-0.243*** [0.073]	-0.006 [0.072]
Agricultural & Bio Sci						
Agriculture Sci	-0.136*** [0.026]	-0.076 [0.091]	-0.077 [0.108]	-0.039* [0.023]	-0.022 [0.065]	-0.030 [0.085]
Other Life Sci	0.174*** [0.055]	0.055 [0.155]	-0.096 [0.166]	0.219*** [0.052]	-0.042 [0.165]	0.053 [0.190]
Home Ec.	-0.097*** [0.023]	0.000 [0.056]	0.057 [0.084]	-0.065** [0.027]	0.104 [0.070]	0.161* [0.092]
Fisheries	-0.001 [0.080]	-0.139 [0.219]	0.105 [0.294]	0.125*** [0.036]	-0.048 [0.100]	0.169 [0.145]
Eng. & Applied Science						
Forestry	0.077 [0.075]	0.637 [0.460]	-0.298 [0.391]	0.242*** [0.027]	-0.345** [0.138]	0.005 [0.117]
Landscape Arch	0.026 [0.045]	0.143 [0.137]	0.155 [0.163]	0.181*** [0.024]	-0.065 [0.082]	-0.040 [0.077]
Health Science						
Nursing	0.447*** [0.010]	-0.095*** [0.030]	-0.037 [0.038]	0.288*** [0.029]	0.048 [0.081]	-0.197* [0.106]
Medical Assist.	0.055*** [0.014]	0.061 [0.042]	0.053 [0.057]	0.028 [0.035]	0.049 [0.102]	-0.062 [0.128]
Public Health	0.463*** [0.027]	-0.086 [0.137]	0.100 [0.120]	0.377*** [0.051]	0.074 [0.204]	-0.047 [0.193]
Medical Techn.	0.278*** [0.013]	-0.091* [0.046]	-0.134*** [0.048]	0.283*** [0.022]	-0.098 [0.070]	0.099 [0.080]
Natural Science						
Chemistry	0.463*** [0.078]	-0.337** [0.139]	-0.177 [0.183]	0.438*** [0.043]	-0.219** [0.107]	0.065 [0.130]
Physics	0.144 [0.232]	0.447 [0.397]	0.423 [1.040]	0.257*** [0.099]	0.068 [0.200]	-0.059 [0.285]
Earth Science	0.213** [0.092]	-0.211 [0.251]	0.690** [0.351]	0.282*** [0.039]	-0.115 [0.114]	0.031 [0.148]
Other Science	0.326*** [0.030]	-0.328*** [0.085]	-0.276*** [0.104]	0.198*** [0.032]	-0.088 [0.094]	-0.084 [0.102]
Trades & Technology						
Building Tech.	0.266*** [0.043]	-0.028 [0.099]	0.027 [0.122]	0.311*** [0.019]	-0.135** [0.057]	-0.039 [0.070]
Trades	0.074** [0.035]	-0.026 [0.089]	0.045 [0.112]	0.198*** [0.017]	0.003 [0.050]	0.012 [0.062]
Electronics Tech	0.187*** [0.015]	-0.074* [0.044]	0.110** [0.047]	0.332*** [0.016]	-0.100** [0.049]	-0.029 [0.060]
Environ. Tech	0.081 [0.068]	0.324 [0.328]	0.305 [0.272]	0.358*** [0.028]	0.021 [0.102]	0.007 [0.117]
Mechanic	0.181*** [0.045]	0.016 [0.116]	-0.132 [0.164]	0.320*** [0.017]	-0.080 [0.049]	-0.045 [0.062]
Transport Tech	0.169*** [0.043]	0.145 [0.106]	0.044 [0.154]	0.359*** [0.020]	-0.097* [0.053]	0.015 [0.068]
Observations	212061			169539		
R-squared	0.066			0.083		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%

Also included in the regression are 9 province of residence indicators,

23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, a fourth order polynomial in age, and all the regressors listed in Table 3.1a.

IV.3 Master's Degree Holders

Table 10 presents coefficient estimates for those with a master's degree. The pattern is somewhat different from that observed at the bachelor's and college levels. Here, for both sexes and many of the fields, foreign educated immigrants are seen to do remarkably well relative to the Canadian-born, while the Canadian educated immigrants do less well.¹⁰ However, despite the change in the ranking of Canadian and foreign educated immigrants relative to the Canadian-born, the general pattern of the Canadian-born coefficients remains quite similar to the coefficients for those with a bachelor's degree. That is, those with degrees in fine and applied arts, literature and humanities, traditional social sciences, and agricultural and biological sciences have lower earnings than the omitted (comparison) education field, while those in economics, and administration and commerce related fields tend to do better, as do those in engineering, health and natural sciences. However, especially for the females, the earnings advantage in engineering and particularly natural sciences is not found in as many fields as it was for those with a bachelor's degree. In terms of the ranking of broad fields of study, as seen in the combination of immigrant and Canadian-born coefficients, the pattern is similar to that for those with a bachelor's degree. Individuals with an arts or humanities degree, and to a lesser extent traditional social sciences, and agricultural or biological sciences, earn less, while those on the administrative and business side do better, as do those in engineering and health. Natural sciences is now more similar to the omitted group, except for mathematics and computer sciences. This pattern of the graduates from the sciences, business, administration and law having higher earnings than other graduates is common to all three levels of education, though it is somewhat less pronounced for the college group.

Overall, field of study is seen to be an important predictor of earnings at all three levels of education, with the more science and business related fields obtaining higher earnings, and humanities, agricultural and biological fields obtaining less, although each level has its own distinguishing features. Relative to bachelor's degrees, immigrants with master's degrees appear to have superior outcomes compared to their Canadian-born counterparts.

¹⁰ Note that Canadian educated immigrants with a Master's degree may have had all of their education in Canada, or only that last degree.

TABLE 10 - 1996 MASTERS: EARNINGS

Variable	Female			Male		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant/Intercept	9.782*** [0.046]	-1.000 [0.922]	-0.079 [0.077]	9.747*** [0.040]	0.702 [0.447]	0.143** [0.061]
Fine & Applied Arts						
Fine Arts	-0.629*** [0.040]	0.135 [0.086]	-0.036 [0.108]	-0.506*** [0.039]	0.302*** [0.087]	-0.246** [0.110]
Lit. & Humanities						
History	-0.299*** [0.057]	-0.092 [0.114]	0.075 [0.128]	-0.218*** [0.037]	0.266*** [0.092]	-0.001 [0.094]
Media Studies	-0.136*** [0.029]	-0.024 [0.085]	0.050 [0.081]	-0.283*** [0.039]	0.466*** [0.104]	-0.107 [0.109]
English	-0.329*** [0.046]	0.377*** [0.091]	-0.030 [0.100]	-0.230*** [0.045]	0.241** [0.106]	-0.426*** [0.108]
French	-0.205*** [0.072]	0.444*** [0.167]	-0.172 [0.178]	-0.177* [0.096]	0.344 [0.212]	-0.427* [0.256]
Other Literature	-0.275*** [0.051]	0.264*** [0.091]	0.076 [0.102]	-0.237*** [0.063]	0.255** [0.113]	-0.074 [0.118]
Philosophy	-0.514*** [0.040]	0.047 [0.116]	0.085 [0.123]	-0.445*** [0.023]	0.337*** [0.062]	-0.038 [0.069]
Other Humanities	-0.346*** [0.054]	0.194 [0.143]	0.010 [0.146]	-0.324*** [0.058]	0.138 [0.150]	-0.228 [0.150]
Social Science						
Economics	0.210*** [0.058]	-0.310*** [0.098]	-0.217 [0.134]	0.141*** [0.030]	0.034 [0.066]	-0.215*** [0.080]
Geography	-0.123*** [0.047]	-0.043 [0.137]	-0.289** [0.131]	-0.048 [0.032]	0.117 [0.095]	-0.019 [0.096]
Political Science	-0.058 [0.061]	-0.232* [0.131]	-0.084 [0.150]	-0.074* [0.040]	0.063 [0.100]	-0.253** [0.103]
Psychology	-0.178*** [0.031]	0.072 [0.090]	-0.028 [0.093]	-0.134*** [0.033]	0.290*** [0.108]	-0.107 [0.096]
Sociology Crim	-0.066 [0.053]	0.158 [0.121]	-0.004 [0.137]	-0.075 [0.046]	-0.097 [0.130]	-0.311** [0.131]
Public Admin	0.196*** [0.036]	-0.126 [0.117]	0.065 [0.109]	0.165*** [0.026]	-0.132 [0.090]	-0.051 [0.094]
Commerce	0.268*** [0.030]	0.105 [0.083]	0.018 [0.078]	0.268*** [0.019]	0.059 [0.052]	-0.152*** [0.051]
Finance	0.239*** [0.055]	-0.076 [0.102]	0.012 [0.121]	0.268*** [0.028]	0.052 [0.064]	-0.133* [0.077]
Marketing	0.173** [0.081]	-0.118 [0.228]	-0.554*** [0.201]	0.193*** [0.053]	0.156 [0.136]	-0.353** [0.148]
Law	0.147*** [0.051]	0.000 [0.121]	0.167 [0.138]	0.369*** [0.030]	-0.246*** [0.087]	-0.258*** [0.087]
Other Soc Sci	-0.128*** [0.028]	0.199** [0.081]	0.126 [0.078]	-0.044 [0.034]	0.063 [0.095]	-0.092 [0.098]
Agri. & Bio Science						
Agricultural Sci	-0.099 [0.104]	-0.171 [0.176]	-0.056 [0.240]	-0.127** [0.055]	0.040 [0.103]	0.045 [0.165]
Biological Sci	-0.230*** [0.051]	0.194* [0.106]	0.013 [0.116]	-0.080** [0.040]	0.295*** [0.108]	-0.039 [0.110]
Other Life Sci	-0.228*** [0.065]	0.193 [0.122]	-0.137 [0.166]	-0.004 [0.063]	0.165 [0.131]	-0.035 [0.168]
Eng. & Applied Sci						
Architecture	-0.356*** [0.100]	0.301* [0.163]	-0.798*** [0.277]	-0.283*** [0.053]	0.416*** [0.081]	-0.158 [0.126]
Other Engineering	-0.078 [0.080]	0.328*** [0.120]	0.494** [0.212]	0.224*** [0.028]	0.182*** [0.053]	-0.130** [0.062]
Chemical Eng	0.316* [0.174]	-0.074 [0.246]	-0.064 [0.330]	0.352*** [0.062]	0.084 [0.099]	-0.182 [0.126]
Civil Engineering	0.111 [0.139]	-0.395** [0.183]	0.031 [0.256]	0.276*** [0.038]	-0.010 [0.066]	-0.202** [0.089]
Electrical Eng	0.229 [0.184]	-0.101 [0.218]	0.318 [0.327]	0.222*** [0.040]	0.336*** [0.066]	0.011 [0.081]
Mechanical Eng	0.134 [0.162]	0.045 [0.198]	0.438 [0.411]	0.289*** [0.047]	0.136** [0.068]	-0.175* [0.090]
Forestry	-0.143 [0.196]	-0.624 [0.500]	0.426 [0.567]	0.179** [0.076]	-0.300* [0.173]	-0.228 [0.211]
Health Science						
Medicine	0.271*** [0.050]	0.102 [0.097]	0.196* [0.112]	0.583*** [0.034]	0.217*** [0.074]	-0.078 [0.080]
Other Health	0.046 [0.028]	0.071 [0.079]	0.069 [0.084]	0.098 [0.065]	0.174 [0.132]	-0.145 [0.162]
Natural Science						
Mathematics	0.081 [0.087]	0.252* [0.131]	-0.062 [0.184]	0.124*** [0.044]	0.106 [0.086]	-0.152 [0.101]
Computer Science	0.151 [0.101]	0.294*** [0.133]	0.052 [0.177]	0.188*** [0.043]	0.338*** [0.071]	0.026 [0.088]
Chemistry	0.094 [0.102]	0.208 [0.139]	-0.004 [0.195]	0.017 [0.057]	0.202** [0.098]	-0.137 [0.127]
Physical Science	0.139 [0.205]	0.148 [0.254]	0.232 [0.358]	0.040 [0.055]	0.219** [0.097]	-0.124 [0.119]
Earth Science	-0.027 [0.094]	-0.002 [0.175]	0.340 [0.266]	0.041 [0.044]	0.095 [0.090]	-0.091 [0.106]
Other Science	-0.076 [0.100]	-0.002 [0.185]	0.013 [0.210]	-0.084 [0.066]	0.468*** [0.137]	-0.095 [0.151]
Observations	26439			40865		
R-squared	0.163			0.186		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%

Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, a fourth order polynomial in age, and all the regressors listed in Table 3.1a.

IV.4 Predicted Annual Earnings by Field

To facilitate comparisons across fields, sex, and the location where immigrants received their education, predicted annual earnings for each group are presented in table 11, for females, and 12 for males. These predictions are generated from the regressions presented in tables 7 through 10, with the transformation to dollars from the log-earnings regressions made using Duan's (1983) smearing approach. The predictions are for a person who is forty years old (and hence on the flat portion of the age-earnings profile), and all other relevant characteristics that do not define the prediction (e.g., excluding the field variables), and are not specific to immigrants (e.g., place of residence or language knowledge), set at the mean for the sample containing all three groups. Of those characteristics that are specific to immigrants, the arrival cohort and place of origin are set at the combined sample mean of the two immigrant groups, while the age at immigration variable is set to the 16 to 20 age group. The age at immigration variable is treated differently because it does not entirely overlap for each immigrant group.

Note that, for both immigrant groups, the average earnings predicted for those with a bachelor's degree in education are lower than the mean for the Canadian born, despite the immigrant coefficients in table 7 not being statistically significant. This also differs, especially for the Canadian educated, from that seen in tables 4 and 6. (Of course, the samples are not directly comparable since the predictions are for those who work, whereas the descriptive statistics include those who do not.) This is in part because the immigrant specific variables (cohort, age at immigration, and place of origin) imply an earnings deficit relative to the Canadian-born. But, more importantly, this counterfactual forces the immigrants and Canadian born to have the same set of characteristics, whereas as seen in the descriptive statistics, immigrants tend to have characteristics associated with higher earnings (they tend to live in cities and high wage provinces, the foreign educated are older). The same effect is present in all predictions in each column; any changes within a column are due to the field of study coefficients exclusively, while movements across columns also follow from the "background" coefficients in the regressions, some of which are presented in table 7. These predictions, therefore, reflect the expected (or average) nominal annual earnings in 1995 for a 40 year old with "average" characteristics.

TABLE 11
PREDICTED EARNINGS
for workers

1996 CANADIAN CENSUS - FEMALES

Field	Canadian Born			Foreign Educated Immigrants			Canadian Educated Immigrants		
	College	Bachelor	Master's	College	Bachelor	Master's	College	Bachelor	Master's
Education									
Education	23179	36769	49501	18940	25669	37062	20714	28130	41082
Fine & Applied Arts									
Fine Art	18928	22759	26397	16570	20417	22625	18321	17712	21124
Literature & Humanities									
History		31267	36724		23750	25073		27054	32854
Media	26683	33676	43187	18993	25947	31574	25586	25377	37675
English	-	30083	35622	-	25923	38877	-	23423	28704
French	-	33142	40327	-	22167	47049	-	30199	28186
Other Literature	23130	29387	37585	21276	22614	36637	25018	22594	33671
Philosophy Theology	19683	28224	29596	14824	25422	23219	16884	24181	26734
Other Humanities	22088	31307	35034	19917	26796	31846	21849	24206	29369
Social Science									
Economics	25855	38819	61066	22641	29750	33531	25693	27056	40813
Geography	26867	31717	43759	-	25095	31369	-	23703	-
Political Science	-	34337	46699	-	25605	27717	-	26363	35633
Psychology	19761	31129	41444	23720	25256	33343	21689	24838	33460
Sociology Criminology	26992	32418	46351	23369	25785	40644	27277	25569	38328
Specialized Admin.	28856	41807	60241	23779	29942	39772	26747	29548	52803
Commerce	28185	43081	64044	22862	28798	53261	26568	32345	54099
Finance	27530	46098	62874	22147	29506	43642	25947	33110	52786
Secretarial Studies	24854			21838			23106		
Marketing	-	42057	58864	-	34902	-	-	-	28087
Law	29627	52634	57318	27851	27333	42922	24966	36119	56203
Other Social Science	25507	36496	43541	19016	29066	39777	23279	27837	40993
Agricultural & BioScience									
Agriculture	20235	29487	44813	15328	23295	28291	16747	30390	-
Biology		32883	39342		28918	35745		28018	33065
Other Life Science	27587	32028	39391	23824	24839	35778	22402	23606	28501
Household Science	21037			17189			19893		
Fish Wildlife Manage	23163			16465			22990		
Engineer&Applied Science									
Architecture		27507	-		23506	35056		24633	-
Other Engineering	-	41116	45802	-	33422	47588		43283	-
Chemical Engineering		54866	-		30527	47235		57536	-
Civil Engineering		43071	-		28319	27890		38049	-
Electrical Engineering		61865	-		36983	42103		53107	-
Mechanical Engineer		49957	-		31295	44358		-	-
Forestry	25024	38706	-	-	-	-	-	-	-
Landscape Architect	23793			22424			24820		
Health Professions									
Medicine		53350	64900		34773	53803		39690	65521
Other Health			51832			41661			46082
Nursing	36240	43039		26928	35857		31197	36310	
Medical Assistant	24485			21272			23078		
Public Health	36845	37277		27628	-		36372	-	
Rehab. Medicine	-	-	-	-	-	-	-	-	-
Medical Technician	30596	35724		22836	29567		23923	27517	
Math & Physical Sciences									
Mathematics		44525	53694		29441	51730		30326	41896
Computer Science		51288	57544		41523	57828		42458	50316
Chemistry	36810	36671	-	21465	27337	50108	27569	32457	44927
Physics	-	-	-	-	29766	49420	-	-	-
Earth Science	28667	39793	-	-	31696	36003	-	30446	-
Other Science	32104	38345	45899	18905	28291	34299	21781	28473	38581
Other									
Trades	24950	-		19871	17578	-	23326	-	
Electronic Technology	27945			21208			27886		
Environment Tech	25142			28394			-		
Mechanic	27787			23082			21759		
Transport Technology	27434			25915			25631		

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

Focussing first on the predictions for females in table 11, three patterns are apparent. First, there is a clear trend to higher earnings with increasing education, from college to bachelor's to master's degrees. However, note that many of the health, physical science and trades fields at the college (bachelor's level) have earnings that are comparable or higher than the lower earnings humanities and fine arts university (master's) fields. Second, earnings among the Canadian-born typically exceed those of both immigrant groups when comparing the same field and level of education. However, no strong statements can be made regarding the two immigrant groups earnings rankings. Usually they are quite close, but which has higher earnings varies across field of study. It is important to recall that these are predictions for annual earnings, and can vary because of the hourly wage, hours per week, and weeks per year. Third, in general, while the same fields that are high earning in one column are also in another, as observed for the regression output, there appears to be less variance across fields for the immigrant groups than for the Canadian-born.

Looking next at the predictions for the males in table 12, the same three patterns observed for the females are obvious. As is commonly observed, mean earnings for males exceed those for females. Note that in some cases, especially at the master's level, immigrants in particular fields have the same or greater earnings than their Canadian-born counterparts. Examples of this include the foreign educated with master's degrees in medicine and architecture. In other fields, notably law, immigrants have substantial earnings deficits relative to the Canadian-born.

TABLE 12
PREDICTED EARNINGS
for workers

1996 CANADIAN CENSUS - MALES

Field	Canadian Born			Foreign Educated Immigrants			Canadian Educated Immigrants		
	College	Bachelor	Master's	College	Bachelor	Master's	College	Bachelor	Master's
Education									
Education	34508	51728	61029	32361	45492	49786	33566	42901	62006
Fine & Applied Arts									
Fine Art	30857	30916	36812	27623	31298	40601	28657	25737	29238
Literature & Humanities									
History		45035	49052		38091	52211		35595	49805
Media	37124	42134	45995	34688	36890	59792	35745	35800	42006
English	-	40430	48475	-	36857	50340	-	29499	32162
French	-	-	-	-	-	-	-	-	-
Other Literature	32274	41943	48131	33363	33155	50668	-	37939	45406
Philosophy Theology	34515	37359	39093	30214	38573	44664	31586	32604	38251
Other Humanities	31978	37413	44153	25578	35247	41363	31193	28698	35717
Social Science									
Economics	40559	57224	70300	37047	44783	59314	41494	44595	57582
Geography	41470	49510	58197	41951	47569	53381	-	42588	57991
Political Science	36353	50312	56698	-	40335	49261	-	39978	44728
Psychology	31894	45992	53392	-	38249	58201	39017	36782	48760
Sociology Criminology	47468	48288	56598	28596	38042	41889	47464	39066	42133
Specialized Admin.	40987	60764	71972	34596	48993	51438	39855	46523	69496
Commerce	45270	63118	79803	38021	44671	69032	39468	44796	69656
Finance	45391	66606	79757	39969	49888	68509	41796	51328	70938
Secretarial Studies	38258			33852			44084		
Marketing		60123	74037		48342	70588		45773	52854
Law	46291	80270	88305	37058	49036	56317	39625	58433	69282
Other Social Science	48220	49914	58378	35456	41540	50721	46606	37475	54092
Agricultural & BioScience									
Agriculture	33194	49861	53747	30463	38852	45657	31332	34937	57102
Biology		50992	56310		35415	61688		40013	55016
Other Life Science	42950	48493	60765	38635	42309	58474	44059	37226	59605
Household Science	32351			33664			36968		
Fish Wildlife Manage	39097			34945			45024		
Engineer & Applied Science									
Architecture		47085	46908		37653	58003		33371	40712
Other Engineering		69742	76387	-	55152	74788	-	55764	68119
Chemical Engineering		82317	86761		59892	76956		58776	73507
Civil Engineering		68164	80441		48463	64948		54139	66762
Electrical Engineering		77789	76228		56088	86981		55651	78278
Mechanical Engineer		71907	81460		50599	76136		56611	69454
Forestry	43935	69000	73024	29181	37323	44126	42933	52257	-
Landscape Architect	41357			36337			38653		
Health Professions									
Medicine		71740	109318		56821	110843		62913	102741
Other Health			67339			65371			59175
Nursing	46017	54595		45268	52501		36768	37971	
Medical Assistant	35495			34973			32436		
Public Health	50301	-		50820	-		46703	-	
Rehab. Medicine	-	-	-	-	-	-	-	-	-
Medical Technician	45790	52685		38932	46808		49182	39980	
Math & Physical Sciences									
Mathematics		63949	69094		49473	62676		50527	60292
Computer Science		66870	73660		61901	84216		54171	76782
Chemistry	53466	59507	62099	40274	47987	61983	55475	45154	55013
Physics	-	56918	63514	44791	45694	64487	-	46944	57009
Earth Science	45769	59168	63560	38258	50516	57030	45905	43501	58983
Other Science	42063	55874	56101	36122	42399	73087	37635	44120	51824
Other									
Trades	42071	71466	-	39584	45908	-	41399	-	-
Electronic Technology	48113			40837			45484		
Environment Tech	49349			47246			48322		
Mechanic	47526			41150			44176		
Building Technology	47112			38596			44068		
Transport Technology	49394			42020			48787		
Other Fields	42277	53517	50285	36508	52038	61306	38828	51308	58533

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

V. Economic Integration by Broad Field of Study

A cross-sectional perspective can answer most of the questions related to field of study, which is primarily a cross-sectional issue, and therefore that is what is presented in the previous sections.¹¹ However, this section looks at issues of economic integration that involve examining how immigrant outcomes vary with years since migration for those who are foreign educated. The Canadian educated are not presented to conserve space, but the results are broadly similar. The results are presented graphically in figures 1 through 6, and are derived from regressions using the three censuses merged. Rather than plot a single profile for all the individual fields, earnings profiles are presented for each of the broad fields of study (e.g., engineering) by years since migration for each sex and level of education. These are predictions at the mean characteristics where only the years since migration variable varies across data points. The arrival cohorts are grouped into five year intervals (in accord with the time between each census), and the profiles, therefore, are comprised of predictions for each entry cohort (in five year groupings), in each census year. Each entry cohort thus has up to three data points, one corresponding to each of the three censuses. All of the earlier entry cohorts have three observations, but the most recent two cohorts, on the extreme left of each plot, have only one or two data points since they are observed only once or twice. Each set of (up to) three points trace out a portion of the profile, and together these sets of segments trace out the entire years-since-migration profile, though only the points for each cohort are connected. Formally, the regression underlying each graph is of the form:

$$\ln(\text{earnings}) = X_{all}\beta_{all} + X_{imm}\beta_{imm} + \sum_{field} \sum_{cohort} \sum_{census} (\text{cohort}_i * \text{census}_t * \text{field}_f) \beta_{field, YSM, cohort} + \varepsilon \quad (2)$$

where *i* indexes the set of cohorts, *f* fields, and *t* censuses; YSM is years since migration and is equal to the census minus the cohort. X_{all} is a vector of regressors common to immigrants and the Canadian born, as outlined in section IV (note, in particular, that this includes a quartic polynomial in age), and X_{immig} are the immigrant-specific regressors including the immigrant indicator variable. The cohort and census variables are indicators for entry cohort and the census year to which the observation belongs. It is predictions from this regression, based on selecting the relevant $\beta_{field, YSM, cohort}$ coefficients, while holding both sets of X 's constant at their means (rounded to one decimal place), that are plotted in the graphs. We plot a different graph for each field, and lines connecting the common cohorts as they are observed at successive years since migration (YSM). While this is graphical, which makes the profile quite clear, and uses three censuses, it is very similar to the approach employed by Baker and Benjamin (1994) in that each cohort's integration profile is traced out by indicator variables.

Recall the implication of the logarithmic scale that is employed; $\ln(\$22000)$ is approximately 10, and $\ln(\$36000)$ is about 10.5. Thus, the variation observed in the figures is quite substantial. All of the graphs use a common scale to facilitate comparisons, with the y-axis plotting $\ln(\text{earnings})$ in constant 1996 dollars, and the x-axis years since migration. These plots are predictions, at mean characteristics, from regressions akin to those presented in section IV, but with years since migration replacing age at migration. Only the years since migration variable adjusts across each

¹¹ As mentioned earlier, the same analysis was conducted for the 1986 and 1991 censuses, and the results were quite similar.

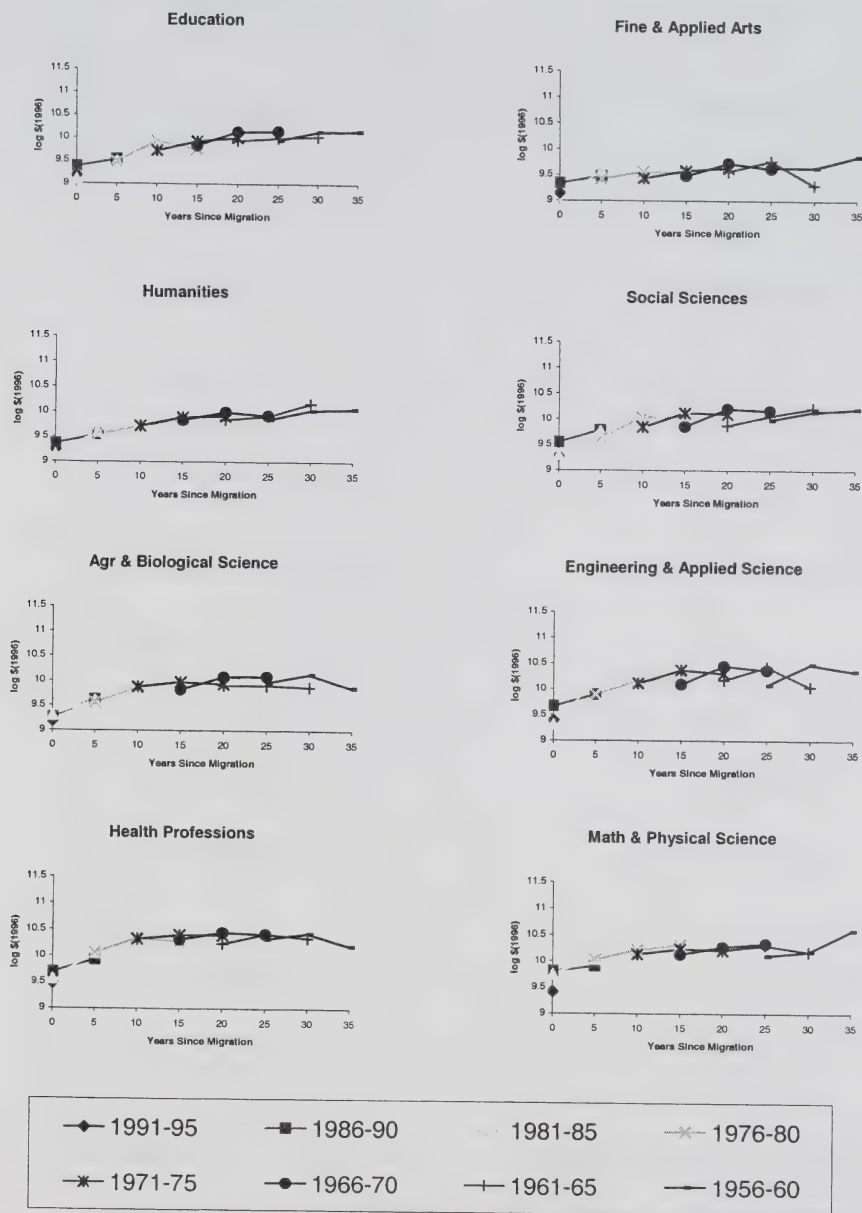
profile. Naturally, individuals would experience different (generally steeper) profiles since, for each, age and experience grow jointly with years since migration.

Figure 1 presents the profiles for females with a bachelor's degree. Recall that these plots are counterfactuals in that all other factors are held constant and the 'pure' effect of years since migration is studied with the Canadian-born being used as a comparison group. It is usually believed that immigrants, on average and relative to the Canadian-born, experience a negative earnings 'entry effect' associated with the disruption of migration. Subsequently, however, their average earnings increase more rapidly than those of the Canadian-born so that immigrants integrate economically (or 'assimilate' in the U.S. literature) as their earnings converge to, or surpass, those of the Canadian-born. All of the fields appear to experience economic integration, except perhaps that for those in fine and applied arts where the profile is quite shallow. The higher earning fields of study seem to have integration profiles that plateau around 10 years after immigration, while the lower paying ones, such as education and humanities, continue to grow across the graph. For males, in figure 2, the plots are noticeably higher, and there is not strong evidence of the profiles ever hitting a plateau. The fine and applied arts plot is jagged because the sample is quite small. Health professions appear to take a strong downward turn in 1996. We investigated this latter effect and it appears to certainly exist in the data and to originate in health fields other than medicine; perhaps it is related to the large cutbacks in healthcare expenditures in the same period.

Unlike those with a bachelor's degree, females with a college degree do not appear to have as pronounced an economic integration profile, or at least it plateaus very quickly, as seen in figure 3. Also, some of the broad fields, especially engineering and applied science, have relatively few observations and are quite noisy. For males, in figure 4, a similar pattern is observed overall, though there is a much larger sample in engineering and applied science. When we look at those with a master's degree, in figure 5 for males and 6 for females, the samples are smaller and the plots somewhat noisier. However, the profiles are clearly higher; in the health professions the curve peaks at around \$100,000 (or $\ln(\text{earnings})=11.5$) annual earnings for the males.

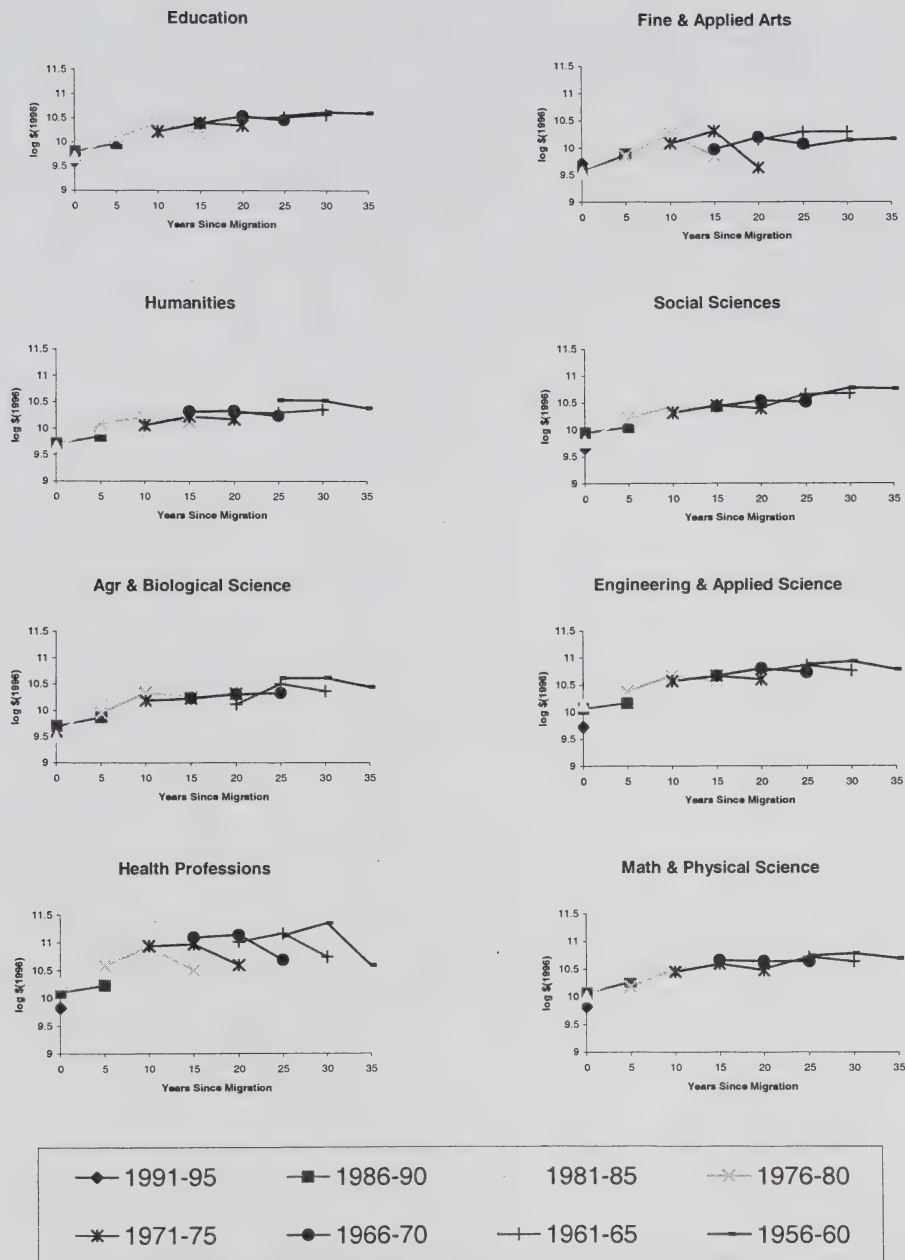
Overall, the plots portray the large differences that exist across field of study in both level and profile, and show that many of these differences across fields appear to be relatively stable with years since migration (though perhaps fine and applied arts graduates have increasingly lower earnings as years since migration increases). Compare, for example, female engineering and humanities graduates; both have sizeable integration profiles, but they are similar (in percent since these are logarithmic plots) and the gap remains roughly constant with science earning more. Graduates from some fields, typically the science-oriented fields and business and administration related fields in social sciences, clearly have much higher earnings than others and this earnings gap is maintained as time in Canada increases.

Figure 1 - Females with a Foreign Bachelor's Degree



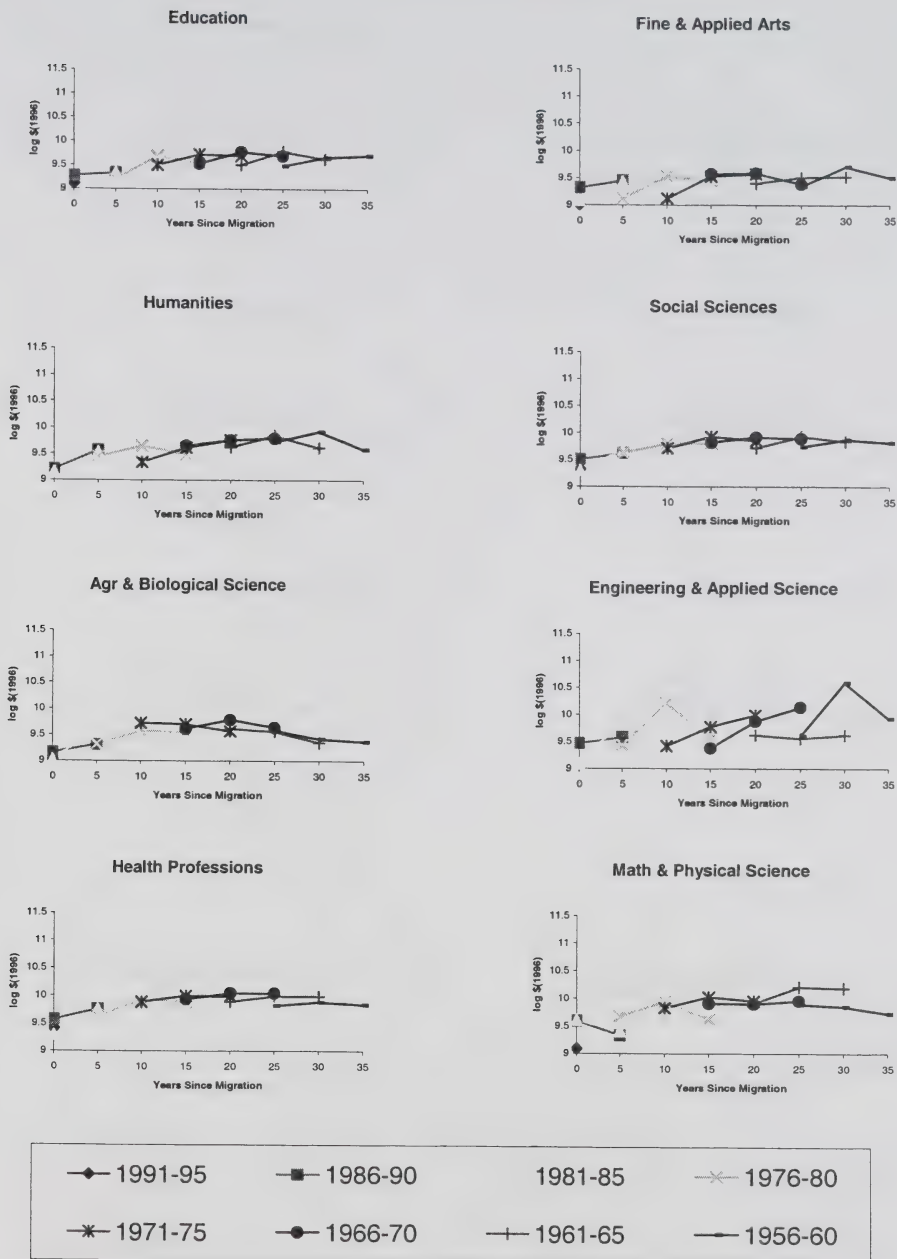
Note: Each line segment follows a 5 year immigrant entry cohort over time using the 1986, 1991 and 1996 censuses. Data points are predictions from regressions that control for the variables described in the text, including cohort effects that are common across fields.

Figure 2 - Males with a Foreign Bachelor's Degree



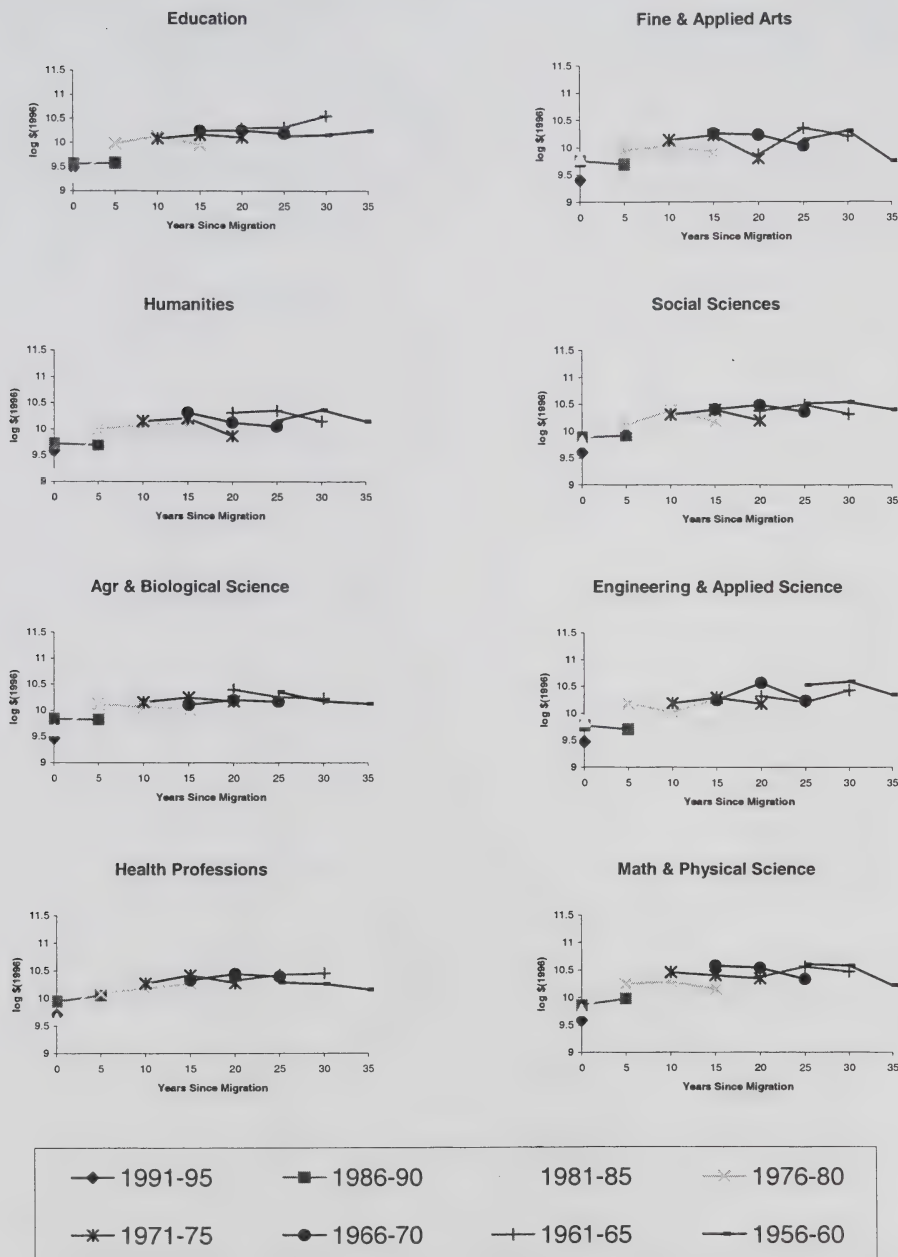
Note: Each line segment follows a 5 year immigrant entry cohort over time using the 1986, 1991 and 1996 censuses. Data points are predictions from regressions that control for the variables described in the text, including cohort effects that are common across fields.

Figure 3 - Females with a Foreign College Certificate



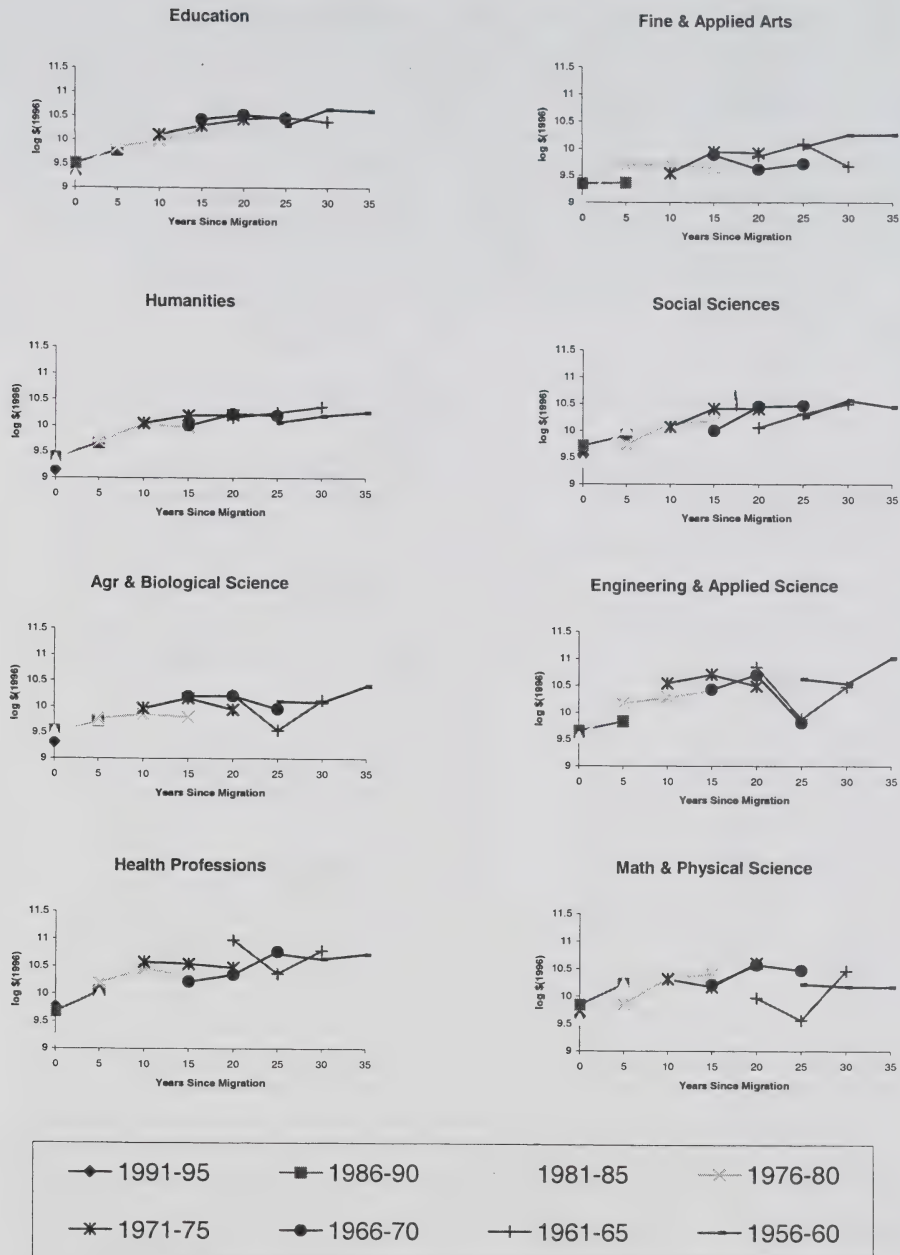
Note: Each line segment follows a 5 year immigrant entry cohort over time using the 1986, 1991 and 1996 censuses. Data points are predictions from regressions that control for the variables described in the text, including cohort effects that are common across fields.

Figure 4 - Males with a Foreign College Certificate



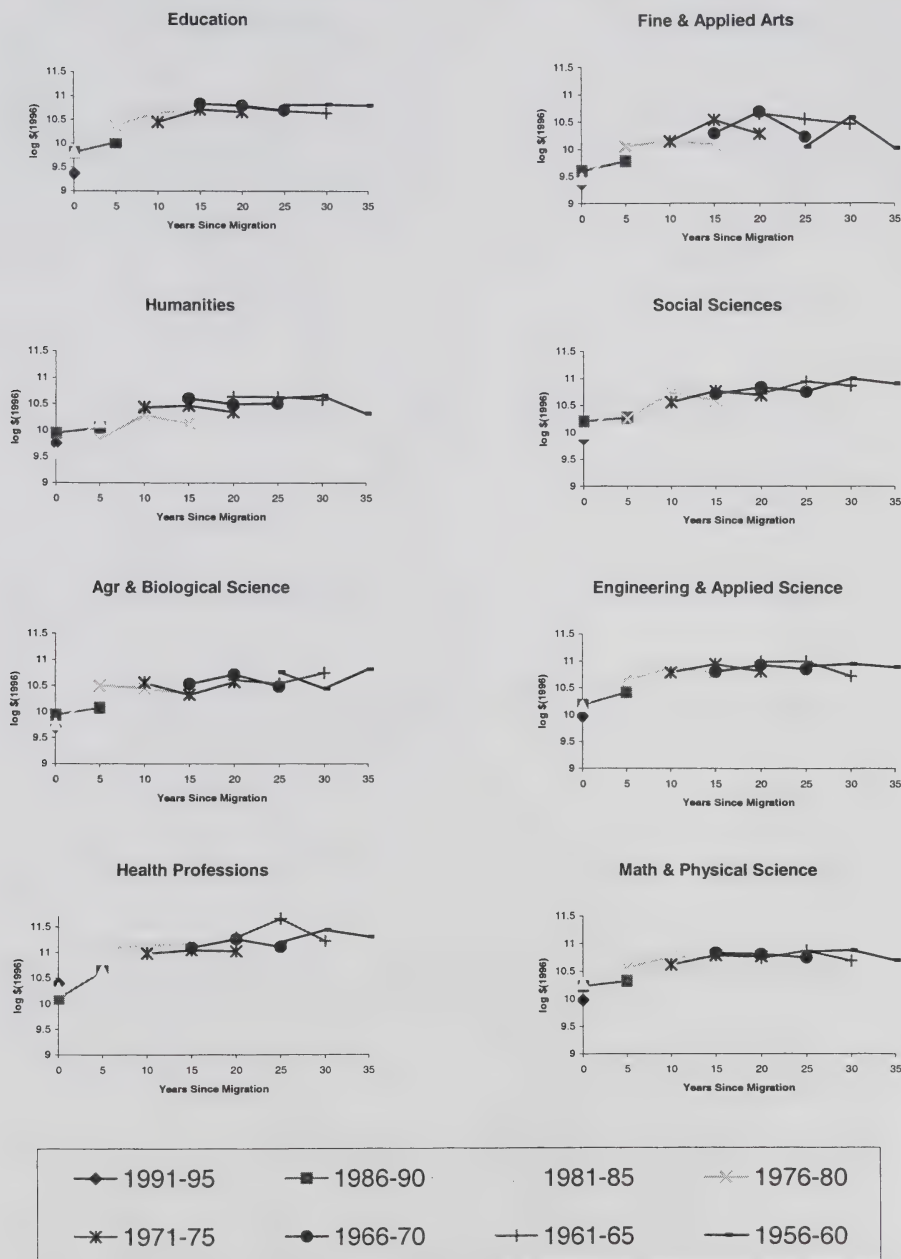
Note: Each line segment follows a 5 year immigrant entry cohort over time using the 1986, 1991 and 1996 censuses. Data points are predictions from regressions that control for the variables described in the text, including cohort effects that are common across fields.

Figure 5 - Females with a Foreign Master's Degree



Note: Each line segment follows a 5 year immigrant entry cohort over time using the 1986, 1991 and 1996 censuses. Data points are predictions from regressions that control for the variables described in the text, including cohort effects that are common across fields.

Figure 6 - Males with a Foreign Master's Degree



Note: Each line segment follows a 5 year immigrant entry cohort over time using the 1986, 1991 and 1996 censuses. Data points are predictions from regressions that control for the variables described in the text, including cohort effects that are common across fields.

VI. Oaxaca-Blinder Decompositions

While it is useful to look at the variation across fields, it is also useful to formalize the impact of the different returns to, and the distribution of, field of study on the immigrant-Canadian-born earnings gap. This is done in a series of Oaxaca-Blinder decompositions. This approach can only compare across two groups, and it can only deal with variables that are common to the immigrants and Canadian-born. Hence, it does not look at the determinants of the distribution of earnings within the immigrant sample (e.g., it does not look at source region). Each variable in the regressions is allowed to have immigrant and Canadian-born coefficients, and earnings differences are attributed either to differences in the distribution of the underlying characteristics, or differences in the return to (i.e., the coefficient for) each characteristic, which reflect how the same characteristic (as measured by the census) is valued in the labour market on average for each group.

$$\ln(\text{earnings}) = X_{CB}\beta_{CB} + \varepsilon_{CB} \quad (3)$$

and

$$\ln(\text{earnings}) = X_{imm}\beta_{imm} + \varepsilon_{imm}$$

Where “CB” indicates “Canadian Born”, “imm” immigrant (either Canadian, or foreign, educated since each is compared to the Canadian-born in turn), X is the data, a vector of coefficients, and an error term. The first regression is estimated using only the Canadian-born data, and the second only the immigrant data for whichever group is of interest. Predictions are then made for each regression at its own mean values of the X 's, and at the other groups' mean values. Differences between various sets of these predictions are the focus of attention. In particular, one can ask questions such as: What would average immigrant wages be if they had the Canadian-born's set of fields of study (endowments) but their own returns (coefficients)? What if they had their own field endowments, but the Canadian-born coefficients? These type of counterfactuals are the subject of tables 13 and 14. In these tables three sets of numbers are presented for each set of variables of interest. For each, a positive value indicates that the Canadian-born have an earnings advantage (a positive gap) relative to the relevant immigrant group (either Canadian or foreign educated), whereas a negative number implies the reverse. All such earnings gap estimates are in percentages, and are from regressions that control for the observable characteristics. The first number is the difference in earnings attributable to the set of variables indicated. For example, in table 13, the age coefficients for foreign-educated females with a college certificate (upper left-hand corner of the table) are associated with 32.7% larger earnings for the immigrant group relative to the Canadian-born (i.e., the negative sign implies the immigrant group has an earnings premium). The second number, -1.5, suggests that differences in the age variable itself plays only a small part in generating this difference. Most of the earnings gap comes from differences in the return to age, with all female subgroups of immigrants having much higher returns, that is, for female immigrants earnings increase with age much more quickly than they do for the Canadian-born. This likely results from age reflecting both the earnings effects of increasing age (and relatedly potential labour market experience) and years since migration. Recall that the regressions underlying these decompositions cannot contain variables such as years since migration variables since they are not available for the Canadian-born. Thus this makes sense since we are not controlling for the immigrant integration effect, and integration is correlated with age – immigrants appear to have a much steeper age-earnings profile because, in this context, age is measuring both its own effect and that associated with economic integration.

Table 13 examines female earnings in 1996, and has eight columns. The first four present results for the foreign-educated immigrants, and the next for the Canadian-educated ones. Results are presented for six sets, or groups, of coefficients. The way that these are set up, a positive number indicates the percentage earnings advantage for the Canadian-born, while a negative number indicates the advantage for the immigrant group in question. For the first column, immigrants are seen to have an advantage in every category except visible minority status. The effect for the language coefficients is worth discussing. Across all of the regressions in table 13, the effects are large and negative. That in column (1) implies a 50% earnings advantage for foreign educated immigrants – recalling the descriptive statistics in tables 1 and 2, college graduate immigrant women are more likely to speak neither official language, and less likely to speak French. Also, their return to speaking English, or both official languages, is very substantial, and the return to speaking French is modest for both groups. The overall effect of the endowments is close to zero, but the remarkable earnings advantage obtained by those who speak English or are bilingual provides them with an overall earnings advantage in terms of language. Therefore, it appears that, holding the other characteristics constant, those females who report speaking neither English nor French have earnings comparable to similar Canadian-born workers, but those who do speak one or both of the official languages have a substantial earnings premium. Although the magnitude varies, this effect is obvious for all the columns in the table, except the Canadian educated PhDs. Of course, these are correlations, not causal impacts.

TABLE 13

OAXACA - 1996 FEMALES

	Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Ph.D.	College	Bachelor	Master's	Ph.D.
AGE	-32.7	-17.7	-22.3	-129.3	-17.8	-9.1	-21.8	-44.4
Endowments	-1.5	-6.9	-3.8	-2.1	-0.4	-0.5	-2.3	-1.6
Coefficients	-31.2	-10.8	-18.7	-127.1	-17.4	-8.6	-19.6	-42.6
PROVINCE	-4.5	-0.9	0.3	14.5	-1.8	2	1.9	17.6
Endowments	-2.7	-1.9	-0.4	-1.2	-3.1	-2.5	-0.2	-1.9
Coefficients	-1.9	1	0.6	15.9	1.3	4.4	2.1	19.7
CMA's	-5.5	-13.3	-7.5	-11.1	-8.5	-7.2	10.8	6.4
Endowments	-11.4	-7.3	-3.9	0.5	-8.7	-5.9	-3.6	1.9
Coefficients	5.9	-6	-3.6	-11.6	0.2	-1.3	14.4	4.5
FIELD	-2.3	-9.3	-4.7	18.3	-2	-1.5	0	7.3
Endowments	-0.3	-3	-0.8	-0.9	0.6	-0.9	-0.3	1.2
Coefficients	-2	-6.3	-3.9	19.2	-2.6	-0.6	0.3	6.1
VISMIN	0.8	7.8	3.3	7.1	1.1	3.6	3.5	2.6
Endowments	1.1	-0.9	0.7	1.1	0.7	-0.5	0.5	0.7
Coefficients	-0.3	8.7	2.6	6	0.4	4.1	3	1.9
LANGUAGE	-50.3	-67.2	-53.2	-116.1	-153.4	-53	-155.9	4
Endowments	0.4	4.8	-0.9	4.4	0.1	1.3	-0.2	1.9
Coefficients	-50.7	-72	-52.3	-120.5	-153.5	-54.3	-155.7	2.1
TOTAL	7.2	35.9	46	24.6	-5.3	1.2	5.7	-1
Endowments	-14.4	-19.6	-8.5	-2.4	-10.7	-10.1	-6.2	0.8
Coefficients	-80.3	-108.4	-97.3	-296.7	-171.6	-83.2	-248.9	-19
Shift Paramtr.	101.9	163.9	151.7	323.8	177	94.5	260.8	17.2

Source: 1996 Canadian Census

Notes: Positive values denote Canadian born earnings advantages (%); negative values denote immigrant earnings advantages (%).

Despite having an earnings advantage in almost every category, we saw earlier in the descriptive statistics that the foreign educated immigrant group on average earns less, not more, than their Canadian-born counterparts. For reasons that are not related to the observed factors in these regressions, the immigrants have a very large earnings disadvantage, as reflected in the shift, or intercept, term. Since only common factors are included in the decompositions, the shift parameter includes the average effects of age at immigration, place of origin, economic integration and other unobserved factors. Thus, overall, the college graduate foreign educated female immigrants in column (1) earn 7.2% less (or the Canadian-born earn 7.2% more); the immigrants have an advantage on the observable characteristics, but start from a much lower base. Most of the other educational categories in this table have a broadly similar result: the Canadian-born have a large earnings advantage for unobserved reasons that might include factors such as the quality of language knowledge, Canada-specific skills, lack of credential recognition, discrimination or other issues.

Focussing on field of study, in table 13 for females and table 14 for males, differences in the current distributions of field are not seen to have consistently large impacts on earnings differences between the Canadian-born and the various immigrant groups (as opposed to across fields within groups where large differences were seen earlier). For females the magnitude of the impact of field of study is not large compared to that of other variables, while for men it is of a comparable influence to the other sets of characteristics under study. Nevertheless, in most columns the immigrants have a small earnings advantage because of their being somewhat more likely to be in higher valued fields of study. Although, as seen earlier, there is great heterogeneity among fields of study, it appears that the differences between the Canadian-born and each immigrant group never explain more than a 14% earnings difference, and for some groups close to none of the difference is explained. In all cases for the males, and most of those for the females, the field endowments have a negative sign suggesting that the various immigrant groups have, compared to the Canadian-born, a distribution of fields that is associated with higher earnings. However, the magnitude of the effect is always small, never more than 5.6%. The coefficients (the relative economic return to fields) provide more mixed results, sometimes being associated with relatively higher earnings for immigrants, but frequently the reverse is true (especially for the males). Thus, if immigrants had the same distribution of fields of study as the Canadian-born, most subgroups would suffer an earnings loss relative to the Canadian-born. This is consistent with the results observed in the regressions and the tables showing the distribution of immigrants across fields. Of course, policy could be used to change the distribution of field of study among immigrants and increase the fraction in high paying fields. Note, that this analysis measures the importance of the current distribution of field of study in explaining existing differences in earnings; it says nothing about what might occur if field of study were added to the points system.

TABLE 14

OAXACA -1996 MALES

	Foreign Educated Immigrants				Canadian Educated Immigrants			
	College	Bachelor	Master's	Ph.D.	College	Bachelor	Master's	Ph.D.
AGE	-11.6	-6.6	17.4	-45.1	-0.7	-3.8	0.9	51.2
Endowments	-3.9	-8	-1.2	-1.5	-0.4	-0.7	-1	-3.8
Coefficients	-7.7	1.4	18.5	-43.7	-0.3	-3.1	2	55
PROVINCE	0.2	5.3	-0.1	0.9	-6.4	-3.8	6	9.8
Endowments	-3.5	-3.3	-1.4	1.4	-3.7	-3.1	-1.4	0.4
Coefficients	3.4	8.5	1.2	-0.5	-2.7	-0.8	7.5	9.2
CMA's	8	14.4	9.7	7.4	0	-3.4	0	3.3
Endowments	-5	-4.1	-3.6	-2.7	-3.9	-3	-2.2	-1.6
Coefficients	13	18.5	13.3	10.1	3.9	-0.4	2.2	4.9
FIELD	0	7	-13.7	-17.4	1.8	3.7	9.3	-0.4
Endowments	-0.6	-5.6	-5.2	-3.7	-0.4	-2.7	-3.2	-1.6
Coefficients	0.6	12.6	-8.5	-13.7	2.2	6.4	12.5	1.2
VISMIN	12.8	23.5	12.2	10.4	6.1	7.8	4.7	3
Endowments	3.9	9.7	7.8	10.4	2.4	5.4	4.7	6.6
Coefficients	8.9	13.8	4.4	0	3.7	2.4	0	-3.6
LANGUAGE	-2.5	-3.6	-27.8	-23.7	3.3	-2.4	19.4	7.3
Endowments	0.6	4.5	0.7	10.9	-0.1	2.7	1.2	6.8
Coefficients	-3.1	-8.1	-28.5	-34.6	3.4	-5.1	18.2	0.5
TOTAL	15.4	38.1	38.2	16.5	-3.7	5.7	2.5	-4.8
Endowments	-8.5	-11.1	-3.6	4.4	0.4	-4.2	-3.4	0.2
Coefficients	15.1	28.7	-14.8	-97.6	-6.1	-4.6	50.8	73
Shift Paramtr.	8.8	20.5	56.6	109.7	10.2	14.5	-44.9	-78

Source: 1996 Canadian Census

Notes: Positive values denote Canadian born earnings advantages (%); negative values denote immigrant earnings advantages (%).

The pattern of decompositions across census years was conducted for the 1986 and 1991 censuses, but is not presented since it is broadly similar though the shift parameter is not as empirically important in 1991 for the females and the PhD column varies for both sexes (as seen in tables 1 and 2, the PhD sample size is the smallest of the education groups and, therefore, the results for that level should be viewed as having less precision). As has been seen in much previous research (e.g., Schaafsma and Sweetman, 2001), the 1996 census reported worse outcomes for recent immigrants than had earlier censuses. These tables suggest that the origin of this phenomenon rests not in any of the observed characteristics that are common to immigrants and the Canadian-born, including field of study. It is plausible that the business cycle played an important role, but there is no evidence other than the dating of the censuses to substantiate this hypothesis in the data employed in this study.

VII. Conclusion

Overall, the analysis finds that postsecondary field of study is an important determinant of earnings for both the Canadian-born and immigrant populations. However, while immigrants are more likely to be in a higher paying field, the difference is relatively small. Although we only present results from the 1996 census, a similar analysis was conducted for the 1986 and 1991 censuses, and the pattern of results was consistent.

Turning to the details of the analysis, first, to facilitate the analysis conceptually, the working age population under study was initially divided into 18 sub-populations identified by: sex (female and male), immigrant classification (those born in Canada, Canadian educated immigrants, and foreign educated), and highest postsecondary degree (college, bachelor's and master's). Since there are 54 fields of study, although not all apply to each level of education, these subpopulations reduce the parsimony of the study, but are required to facilitate a meaningful analysis of a heterogeneous issue. Further, to provide the context for the exploration of postsecondary field of study, initial descriptive statistics looking across levels of education are provided for each of the six sex-immigrant/Canadian-born groups. The most striking general observation across all levels of education is that, for both sexes, Canadian educated immigrants have extremely good labour market outcomes, in terms of earnings, hours per week and weeks per year. They are better than those for the Canadian born, and far better than those for foreign educated immigrants. In part, this is because they have high levels of education. In contrast, immigrants without Canadian education have fewer years of education, are less likely to have had work in the year and have lower earnings.

There are also very sizable differences in demographic characteristics across the six sex-immigrant/Canadian-born groups. For both sexes, the foreign educated are the oldest of the groups, and they are almost alone in having a sizable fraction of individuals who speak neither of Canada's official languages. A high fraction of those who speak neither language have less than a high school education. On other dimensions, both immigrant groups (Canadian and foreign educated) are dramatically more likely to be a visible minority and live in an urban area.

Initial descriptive statistics by field of study for the three selected levels of education show all three groups to have quite different distributions across fields of study. Especially for females, but also for males, the Canadian-born group is much more likely, two to three times, to have a teaching degree. Immigrants, especially immigrant females compared to Canadian-born females, are much more likely to be in engineering and applied sciences, or in math, physical sciences and medicine. In general, female immigrants are more likely to enter "traditionally male", and higher paying, disciplines that are science or math related than are Canadian-born females (for example, economics comprises 1.34% of female Canadian-born bachelor's degrees, but 3.86 and 3.24 of the foreign and Canadian educated immigrant ones).

Simple descriptive statistics of mean salaries by group and field show many differences across fields within levels of education that are on the order of 30 to 50% for the Canadian born. For example, in 1996 Canadian-born male graduates with a bachelor's degree in English received, on average, \$35,389 per year, whereas mechanical engineers received \$55,987. Females, on average, had lower earnings, but the gaps across fields were similar: fine art graduates earned \$21,335, whereas those in mathematics received \$35,259 (mechanical engineering was \$42,168). Canadian educated immigrants have comparable, or higher, earnings to the Canadian born, but the foreign educated immigrants have lower ones. Further, the field of study differentials within the foreign educated subgroup are not as large.

At the bachelor's level the statistical regressions reinforce the observation that the differences between fields is not as large for immigrants, especially for the foreign educated, as it is for the Canadian born. This is not to say that no field differences exist, or that the pattern is perfectly "smooth", but that there is a general tendency for fields with positive premia for the Canadian born to have a reduction in that premium observed for the immigrant subsample (though the premia remain substantial).

For college graduates there are far fewer differences in field of study premia between the Canadian-born and immigrant populations. The premia by field are, however, broadly similar with the more science and technology oriented fields having greater earnings along with those in business, law and related fields. At the master's level the pattern is quite different. Field of study premia are still observed, but foreign educated immigrants with a master's degree generally have positive premia relative to the Canadian born, especially in the lower paying arts, and literature and humanities, fields. This, once again, serves to reduce the differential between the high and low paying fields for the immigrant population relative to the Canadian-born one.

Predictions based on the regressions above reinforce the earnings differences observed previously across both levels of education and fields of study in terms that are readily interpretable. On average, those with higher levels of education, and in fields in sciences (though not agricultural and biological sciences) and many of the non-traditional social sciences (e.g., business), tend to have higher earnings. These two factors trade off against each other and, on average, those with college level degrees in physical sciences and trades have earnings that are comparable, and for the males frequently higher, than those with bachelor's degrees in fine and applied arts, and humanities. In comparing both immigrant groups to the Canadian born, it is important to recall that the predictions are for the average source region and birth cohort, and for those who arrive between the ages of 15 and 20. For most fields immigrants are observed to have earnings that are below those of Canadian-born individuals in the same field and the gaps are sometimes substantive. For example, Canadian-born females with a bachelor's degree in psychology earn \$31,229, on average, compared to \$25,256 for foreign educated immigrants, and \$24,838 for those with at least some education in Canada. For high paying fields the dollar gaps can be much larger. Many of these gaps across the Canadian-born and immigrants groups are accentuated in the predictions relative to the descriptive statistics. This arises from differences in the samples and the procedure employed; the counterfactual sets characteristics to be the same across the three groups (except for those defining the cell for the prediction, and the immigrant specific variables). However, immigrants tend to have characteristics that are associated with higher earnings (e.g., they tend to be more urbanized), and when the effect of these characteristics is removed, the earnings gap between immigrants and the Canadian born increases.

Economic integration profiles for the foreign educated are also presented. They graphically show differences in both levels and integration patterns across fields and levels of education. Increased earnings with years since migration are observed for all fields at the bachelor's level, except perhaps fine and applied arts where there is little earnings progression with time in Canada. At the college level there is much less earnings progression as years since migration increase. This is in accord with age-earnings profiles in the literature, which show much smaller earnings increases with age for those with lower levels of education (a textbook treatment is Benjamin, Gunderson and Riddell, 1998, figure 9.5). It suggests that Canadian human capital accumulation is more prevalent for those with higher levels of education. Though this is not unique to immigrants, increased education is associated with increased learning post-graduation. The integration profiles for those with master's degrees are at least as steep as those with a bachelor's degree. However, the sample sizes are smaller and some of the plots are quite noisy, especially for the females.

A set of (Oaxaca-Blinder type) decompositions are used to compare each immigrant group to its Canadian-born counterpart within each degree level. This analysis allows any differences between the Canadian born and each immigrant group to be decomposed into differences in endowments, and the return on those endowments. Field of study is treated as one type of endowment. It is found to explain at most about 14% of the difference in earnings between the two groups. Age, associated

with in the range of a 20 to 30% premium for the various immigrant female groups, though somewhat less for the males, and language, associated with an over 50% premium for the females, but again less for the males, appear to be much more important characteristics economically for the females and equally important for the males in explaining earnings differences. Thus field of study is a relatively more important predictor of earnings differences with the Canadian born for males than females. However, for the females none of the observed characteristics explain as much as is left unexplained. That is, there is much that is attributable to factors, such as time since migration, that are unique to immigrants, and/or to factors that are not included in the regressions. For males, the observed characteristics explain a much higher fraction of the variance in earnings, but there is still much that remains unexplained. Immigrants almost always have economic advantages in terms of their characteristics, and they frequently have returns to those characteristics that are greater than those of the Canadian born, but they almost always have an even larger deficit in terms of characteristics that are associated with their immigrant status (such as time in Canada).

Overall, there are sizeable earnings differences across fields of study, and these differences are observed for both immigrant groups and the Canadian born. However, the magnitude of the differences are, in general, slightly smaller for the immigrant groups, especially the foreign educated, compared to the Canadian born. Still, British Columbia's approach to finding high earning immigrants, described in the introduction, selects individuals who tend to have higher than average earnings.

This study does not look at the impact that this type of focussed immigration policy, were it expanded in scale, might have on those already working in the Canadian labour market (both Canadian born and previous entry cohorts of immigrants). This is an area that should be explored in future research should the policy of targeting immigrants by field of study be pursued, especially if the fraction of immigrants in such fields grows substantially. Relatedly, it would be worth considering the social impacts of an immigrant pool comprised largely of individuals from a narrow set of fields of study.

If field of study were to be used in the points system, it would also be advantageous to collect data on field of study at landing – that is, the field that would be employed by the points system. For the foreign educated, the field observed in the census is that at landing, but this need not be the case for those with Canadian education since the field of their highest level of postsecondary may have changed, or been established for the first time, following their arrival in Canada. While some of the Canadian educated arrived in Canada at a sufficiently young age that they would not have entered postsecondary before landing, there is a substantial group of the Canadian educated for whom the field recorded in the census may not reflect the one that would have been observed at landing. In a similar vein, for policy purposes with respect to the points system, field of study is only relevant for those who are assessed under that system. The census data employed in this study do not allow immigrant class to be observed; collecting information that allowed field to be identified along with immigrant category would be valuable.

Beyond the points system this study gives insight into the economic integration and labour market performance of immigrants to Canada. It suggests that the economic premia associated with field is quite important, but it appears not to be as important for immigrants as for the Canadian born since the differences between the high and low earnings fields of study are usually smaller for the immigrant groups. It also shows that there is great economic value in Canadian education.

Appendix 1 - Unemployment Insurance and Other Government Transfer Receipt by Field of Study

Descriptive Statistics

This appendix looks at Unemployment Insurance and other government transfer receipt by immigrants according to their field of study.¹² It follows a format and methodology identical to that used for earnings in the main text. Appendix table 1 complements tables 1 and 2 in the text and describes labour supply (weeks and hours) and program benefit by level of education. The groups are exactly the same and the sample sizes are given in tables 1 and 2 for the entire population (i.e., it is not restricted to the working subsample). Similar to the pattern seen in tables 1 and 2, for both sexes the Canadian educated immigrants work both more weeks in the year, and hours in the week, than the other two groups of the same sex. The Canadian born provide the second largest quantity of labour in the market, and the foreign educated the least. This pattern is observed across essentially all levels of education. Both Unemployment Insurance and other government transfers reflect the total dollar value received in the year 1995.

Unemployment Insurance receipt has somewhat different patterns across the two sexes, which follows from both employment patterns and employment earnings that influence the benefit rate. For both, the Canadian born obtain higher benefits, but for females the Canadian educated immigrants receive the second largest amount, whereas for the males the foreign educated do. Canadian-educated females have higher earnings, which causes higher benefit receipt when unemployed, and possibly they are more likely to take advantage, and to be in a position to take advantage because of their greater labour force attachment, of maternity and parental benefits. That the Canadian born receive the most Unemployment Insurance benefits is not surprising given the relative geographic distribution of Canadian born away from major centres with lower unemployment rates.¹³ Further, for Unemployment Insurance benefits, the Canadian born receive more in almost every education category.

In terms of other government transfers, differences from the Unemployment Insurance pattern are obvious and include the foreign educated immigrant males receiving more government transfers at almost all levels of education, whereas the Canadian-educated immigrant males receive less at almost every level, compared to the Canadian born. In contrast, among females the Canadian born receive greater transfers. That foreign educated females are observed to, in total, receive less government transfers is not entirely attributable to their being the best educated group since it occurs within education categories. The Canadian educated immigrants have a pattern that, while there are some differences, largely mirrors the Canadian-born female pattern. Of course, it is more difficult

¹² We use the term Unemployment Insurance, rather than Employment Insurance, since the data in question refers to 1995, when the Unemployment Insurance system was operating. Other government transfers (that is, aside from Unemployment insurance) include old age security pensions, which are not particularly relevant to the age groups under study, provincial income supplements, social assistance, and welfare payments. Previous work in this area includes, Baker and Benjamin (1995), Crossley, McDonald and Worswick (2001), and Sweetman (2001). All find that immigrants make less use of Unemployment Insurance than the Canadian born, although there is mixed evidence on trends in use with years since migration. Social assistance is only addressed in the first, where its receipt is seen to be lower, on average, for immigrants.

¹³ As seen in tables 1 and 2 in the main body of the paper, immigrants are much more likely to live in an urban environment, and, related though not explicitly displayed in the tables, they are much less likely to live in the east coast provinces and northern regions of Canada that have quite high unemployment rates.

to separate government transfers by sex than it is for Unemployment Insurance receipt since the former are to families, and depend upon family size, while the latter are to individuals. It is not clear which family member will report the receipt on the census form.

Unemployment Insurance receipt by those with Bachelor's Degrees

Appendix table 2 is comparable to table 7 but the dependent variable is Unemployment Insurance benefits rather than earnings. It presents coefficients for interesting background variables for those with a bachelor's degree. The set of control variables in each regression is exactly the same as for earnings. Also, as with the earnings tables, coefficients from some control variables are not reported to save space. One important difference from the earnings regressions is the nature of the sample. These regressions contain the entire sample of immigrants (comparable to the relevant samples in tables 1 and 2, and appendix table 1, but with slightly fewer observations since some had missing information). Those who had no Unemployment Insurance benefits, or government transfers (to be discussed below), in the year have those variables set to \$1 and the natural logarithm of each variable is used in the regression. (Note that the logarithm of one is zero.) Unlike earnings, including those without benefit receipt is conceptually important for understanding the use of these. Of course, though not displayed, these regressions control for place of residence, which is empirically important for Unemployment Insurance with Québec and the eastern Canadian provinces receiving greater benefits. Including these controls provides a measure of Unemployment Insurance receipt relative to those in the same local labour market, in contrast to the descriptive statistics. With these controls the immigrant indicator is effectively zero for all but the foreign-educated immigrant males, for whom it is strongly positive with a coefficient of 0.981. Interestingly, Canadian-born visible minority females receive less Unemployment Insurance, but males receive about the same amount conditional on the other regressors employed. With the exception of the foreign educated females, the other immigrant visible minority coefficients do not differ from zero. That for the foreign educated females serves to counterbalance the coefficient for the Canadian born; so the total effect is zero for that group. Canadian-born individuals of both sexes with knowledge of English, or neither official language, appear to receive less Unemployment Insurance, but the deviations from this pattern are quite mixed for the immigrant groups.

Arrival cohort only appears to be associated with Unemployment Insurance benefits for the Canadian educated males, and foreign educated females, for whom more recent cohorts receive less. Although the reasons for this are unclear, it is consistent with Crossley, MacDonald and Worswick (2001), who find mixed results in a longitudinal context across immigration cohorts. Of course, they have not controlled for age at immigration and cohort effects simultaneously. Age at immigration is, in contrast, correlated with benefit receipt, with those who immigrate at a younger age taking up fewer benefits for the Canadian educated (as with the earnings section, the omitted group for the foreign educated is those who immigrate between the ages of 16 and 20). For the foreign educated, the pattern differs across the sexes, with the omitted group receiving the most benefits among the males, but the fewest among the females. Some of the differences with respect to age at immigration are quite large. Region of origin has some sizeable implications for Unemployment Insurance benefits, but many of the coefficients are close to zero.

Turning to appendix table 3, which contains the regressions results for fields of study for those with a bachelor's degree, there are clear differences across fields of study. For the Canadian-born females, graduates from no field of study receive more Unemployment Insurance benefits than those with an education degree (i.e., all of the coefficients are negative, though a few are not statistically significant). Further, many of the differences across fields are over 50%. For males, the

contrast is not quite as stark. Graduates in arts, and literature and humanities, have comparable and sometimes greater Unemployment Insurance receipt. However, those in the high earnings disciplines, such as business, law, engineering, health and natural sciences all received lower, and frequently much lower (up to 50 or 60% less), Unemployment Insurance benefits in 1995. The differences are quite striking.

For the immigrant groups, the coefficients, which represent differences in Unemployment Insurance use relative to the Canadian born, tend to be positive when they differ from zero, especially among the high earnings disciplines. Thus the gap between those with an education degree, usually the highest Unemployment Insurance benefit receiving discipline, and the other fields is smaller. The fields in arts, literature and the humanities, the traditional social sciences and agriculture and the biological sciences tend to be slightly more similar to each other and to education for the two immigrant populations. Overall though, these differences are not large enough to reverse the pattern observable among the Canadian born, although they do for some particular fields. As with earnings, the differences across fields are not as strong for the immigrant groups as for the Canadian born.

Unemployment Insurance receipt by those with College Certificates and Master's Degrees

Appendix table 4 explores Unemployment Insurance receipt among those with a college certificate. Though perhaps not as strong, the pattern for the Canadian born is remarkably similar to that for bachelor's degrees with the omitted group, education, receiving more Unemployment Insurance benefits than other disciplines, but in this case the observation applies to both sexes equally. Many of the differences are quite substantial, over 50% greater benefit receipt in the year. The pattern of differences of each immigrant group from the Canadian born is similar to that for bachelor's degrees, but not as strong. Most disciplines have positive coefficients.

Appendix table 5 looks at Master's degree holders. The pattern seen for bachelor's degrees does not appear to hold here. In particular, those with education degrees are no longer the most prevalent users of Unemployment Insurance. Comparable benefit receipt is made by those in arts, literature and humanities, and the traditional social sciences. Overall, Unemployment Insurance benefit receipt appears to be much more evenly distributed across fields at the master's level, except that social sciences such as business, law and related, and engineering for the males, receive less. One notable aspect of this table, akin to that observed for earnings at the master's level but in reverse, is that the foreign educated receive fewer benefits outside of education.

Government Transfers received by those with Bachelor's Degrees

Other government transfers are also observed to vary across fields of study. For those with a bachelor's degree, the coefficients on the non-field of study (background) variables of interest are presented in appendix table 6. Interestingly, the immigrant indicator variables are close to zero for both education groups for both sexes. (Of course, as everywhere else, the immigrant indicator reflects a particular set of immigrants, those in the omitted groups for the other indicator variables.) Canadian-born male visible minorities are seen to receive up to $((\exp(0.593)-1)*100=)$ 80.9% more government transfers than non-visible minorities. Female visible minority immigrants do not differ from the Canadian born, but the males do. Canadian educated males receive less, and the foreign educated receive more. Language knowledge is, once again, mixed, but those who speak French tend to receive greater transfers. More recent arrival cohorts also appear to make greater use of benefits for males, but not for females. This may reflect who reports the benefit receipt in households with males and females. Among source countries, males from regions other than the

omitted one (UK, US, Australia, New Zealand etc.) tend to receive greater transfers, but the reverse is true for females.

Looking at appendix table 7, a pattern of coefficients that is numerically the inverse of that for earnings is observed. For the Canadian born, individuals in the lower earning fields in arts, literature and humanities, the traditional social sciences and some agricultural and biological sciences tend to receive more government transfers than those in business and law, engineering, health and natural sciences. This pattern is the same for both sexes, and the differences are quite large. Canadian-born females with a philosophy degree, for example, receive $((\exp(0.718)-1)*100\%=)105\%$ more than those with an education degree, while those with a mathematics degree receive $((\exp(-0.333)-1)*100\%=) 39.5\%$ less.

Canadian educated immigrants have a pattern that is very similar to the Canadian born; only a very few coefficients are statistically significant. The foreign educated have a pattern that has been seen in the previous tables. Their pattern exhibits a smaller range of differences across fields than the Canadian born and the coefficients tend to have opposite signs from those of the Canadian born. The differences are not enough to “undo” the pattern whereby those in sciences, business and law tend to receive fewer transfers on average, but the difference across fields is not as large.

Government Transfers received by those with College Certificates and Master’s Degrees

The pattern of government benefit receipt for college graduates is quite similar to that for individuals with a bachelor’s degree, and, like those with a bachelor’s degree, close to a mirror image of the pattern for earnings. For the Canadian born, those in arts, humanities and the traditional social sciences tend to receive greater transfers, whereas those in the sciences (except agriculture and biological sciences) receive fewer. One exception is that females in trades and technology fields, in stark contrast to the males, tend to receive higher transfers. The Canadian educated immigrant population is quite similar to the Canadian born one, though once again, what differences there are tend to moderate the aforementioned pattern. Unlike the bachelor’s level for transfers, but more like the college findings for earnings, the foreign-educated immigrant population is also very similar to the Canadian born one, and again what deviations there are tend to moderate the differences across fields.

At the master’s level, as seen in appendix table 9, the pattern for the Canadian born is remarkably similar, in broad terms, to that for the bachelor’s level. One exception is the males in the natural sciences, where, as with earnings, their outcomes are more similar to the omitted group (education) than is the case at the bachelor’s level. The Canadian educated immigrants are again quite similar to the Canadian born; that is, there are few statistically significant coefficients, but again those that are significant tend to have the opposite sign from the Canadian born. In contrast, the foreign educated tend to have negative coefficients, suggesting that many fields receive fewer government transfers than those in education.

Predicted Unemployment Insurance and Other Government Transfers

Appendix tables 10 through 13 present predictions from the regressions in appendix tables 2 through 9. These are valuable since they permit comparisons across regressions that are not easy to do with the regression output, and they combine the effects of the fields of study with those of the other variables. However, as with the predictions in the main paper, the other variables are held at the

same values for all cells in the tables (age 40, all others at the sample mean except age at immigration, which is at the common omitted group).

For both sexes, in appendix tables 10 and 11, Unemployment Insurance receipt is seen to average between just under \$200 per year, to somewhat over \$1000 (with a few exceptions going higher, but recall that these are estimates and some of the underlying coefficients are large, but not statistically significant). Many of the patterns are as discussed for the coefficients. Most notable is that, as was the case with the coefficients, there are fewer differences across fields for Unemployment Insurance than either earnings or government transfers. This is probably largely because of the maximum insurable earnings provision, that reduces the relationship between earnings and benefits, and the fact that labour force attachment is required to qualify for benefits.

More substantial differences, and clearer patterns are observable for government transfers other than Unemployment Insurance. The high paying fields receive fewer transfers, as do those with a college degree. Among those with a bachelor's degree, in general the Canadian born in literature and the humanities, fine arts, and the lower paying social sciences, receive greater benefits. Immigrant females tend to report relatively low levels of government transfers, whereas the comparable males have quite large transfers. Since a substantial portion of the transfers in this group, especially social assistance, is (unlike Unemployment Insurance and earnings) transferred to the household rather than individuals, this may reflect reporting patterns in part.

Appendix Conclusion

In looking at annual Unemployment Insurance (Unemployment Insurance since the data is from 1995) and other government transfer (e.g., social assistance) receipt, both immigrant groups are observed to receive less Unemployment Insurance than the Canadian born. And only foreign educated immigrant males receive more government transfers than their counterpart Canadian-born group. In terms of patterns across fields of study, for the most part the results are mirror images of those for earnings, although the findings for Unemployment Insurance are more mixed. One exception to this is that those, especially the Canadian born, with education degrees tend to receive very large Unemployment Insurance transfers. Overall, those fields with high earnings also have lower, or much lower, levels of benefit receipt from other government transfers.

Interestingly, the pattern seen for earnings whereby the variation across fields is larger for the Canadian born than for either immigrant group, is seen for these benefits. While differences across fields are present for all groups, they are generally larger for the Canadian born (though the study does document a few exceptions, for example females with college certificates in trades and technology).

As with the earnings analysis, while the census has the advantage of a large sample size that permits detailed fields to be observed, there would be value in exploring the field of study issue in data that capture field at landing rather than at the survey date. Perhaps the longitudinal immigrant survey that is in the field currently could be used to explore this question. Relatedly, the census only captures the highest field of study, and for those with some Canadian education, this may differ from that at landing. For policy purposes, an improved understanding of how the relationship between the various aspects of education, including field of study, interact with the economic and social integration immigrants to Canada would be worthwhile.

Appendix Table 1 - DESCRIPTIVE STATISTICS for UNEMPLOMENT INSURANCE AND GOVERNMENT TRANSFERS 1996

Canadian Born Females										
	<HS	HS	Col	BA -	BA	BA +	MD	MA	PHD	Total
Hours (All)	14.13	22.17	24.43	24.81	28.97	30.25	38.42	32.27	36.04	21.30
Weeks (All)	21.05	32.50	35.53	35.79	40.02	40.48	44.91	42.15	43.79	30.81
UI (\$)	458.00	578.12	707.75	628.09	759.40	638.31	292.60	599.96	420.71	594.11
Govt. Transfer (\$)	1401.63	671.69	667.79	450.07	292.58	310.44	161.80	246.59	185.96	847.27
Foreign Educated Immigrant Females										
Hours (All)	13.89	19.10	22.08	22.10	23.28	24.10	24.67	25.68	30.91	18.50
Weeks (All)	20.24	27.07	31.60	31.49	32.27	32.26	31.81	34.27	39.10	26.33
UI (\$)	382.90	436.45	472.38	454.00	489.02	481.52	419.31	551.15	459.97	432.23
Govt. Transfer (\$)	996.91	689.39	635.27	493.20	395.61	443.72	470.44	394.79	223.98	752.09
Canadian Educated Immigrant Females										
Hours (All)	19.51	24.00	25.52	27.21	29.29	30.86	38.05	31.72	36.78	25.28
Weeks (All)	28.44	34.88	36.72	37.48	39.89	40.65	44.87	41.52	44.55	35.70
UI (\$)	439.91	530.35	635.89	520.13	666.48	605.81	233.22	589.47	453.78	567.91
Govt. Transfer (\$)	1007.44	605.74	664.15	499.64	302.15	265.30	176.27	241.00	285.00	615.77
Canadian Born Males										
	<HS	HS	Col	BA -	BA	BA +	MD	MA	PHD	Total
Hours (All)	26.06	34.84	35.36	36.75	39.27	39.05	45.93	39.53	40.29	32.73
Weeks (All)	30.68	40.56	41.13	42.36	45.56	44.83	47.17	45.75	46.71	38.14
UI (\$)	1013.26	774.14	873.86	525.01	407.51	305.12	93.78	273.85	227.36	819.80
Govt. Transfer (\$)	1577.09	820.30	789.56	588.70	323.92	325.55	154.99	260.80	249.61	989.20
Foreign Educated Immigrant Males										
Hours (All)	25.64	30.57	32.51	31.78	33.29	33.32	40.50	35.41	37.91	30.29
Weeks (All)	31.09	35.77	37.97	37.10	38.80	38.65	41.07	40.52	43.36	35.64
UI (\$)	719.51	577.31	592.37	516.97	454.12	487.21	173.47	447.11	266.83	596.78
Govt. Transfer (\$)	1484.60	1035.14	948.45	777.83	679.19	703.29	550.58	592.54	382.43	1073.34
Canadian Educated Immigrant Males										
Hours (All)	32.24	35.57	36.71	36.28	38.94	38.57	47.58	39.73	40.91	36.55
Weeks (All)	37.44	41.68	42.75	41.60	44.81	44.38	46.97	45.56	46.91	42.29
UI (\$)	675.27	556.73	590.34	375.29	380.94	315.01	122.72	309.28	173.28	518.48
Govt. Transfer (\$)	1111.43	714.83	655.06	510.78	347.50	309.36	229.18	299.16	219.66	645.83

Source: 1996 Canadian census.

APPENDIX TABLE 2 - 1996 BACHELORS: UNEMPLOYMENT INSURANCE

Variables	Females			Males		
	Cdn Born	Foreign Ed	Cdn Educ	Cdn Born	Cdn Educ	Foreign Educ
Immigrant	1.888*** [0.047]	-0.107 [0.397]	-0.140 [0.126]	1.382*** [0.041]	0.981** [0.413]	0.044 [0.104]
Vismin	-0.212*** [0.062]	0.277** [0.120]	-0.093 [0.119]	0.029 [0.047]	0.132 [0.085]	0.050 [0.090]
Language Knowledge						
French	0.150*** [0.042]	-0.383** [0.160]	-0.162 [0.251]	0.196*** [0.037]	-0.448*** [0.131]	0.547** [0.239]
Bilingual	0.019 [0.024]	-0.064 [0.071]	-0.212*** [0.064]	0.066*** [0.020]	0.026 [0.052]	-0.055 [0.048]
Neither	1.256 [0.791]	-1.527* [0.812]	0.878 [1.503]	-0.481 [0.987]	0.704 [0.996]	0.983 [1.294]
Arrival Cohort						
i9195		-0.556*** [0.152]	-0.102 [0.214]		-0.012 [0.115]	-0.350* [0.186]
i8690		-0.340** [0.154]	-0.337** [0.149]		-0.008 [0.116]	-0.317*** [0.117]
i8185		-0.216 [0.159]	-0.125 [0.132]		-0.019 [0.119]	-0.160 [0.101]
i7680		-0.110 [0.157]	-0.005 [0.116]		-0.103 [0.119]	-0.114 [0.087]
i7175		0.049 [0.155]	0.031 [0.106]		-0.075 [0.115]	-0.046 [0.078]
i6670		-0.075 [0.158]	0.126 [0.104]		-0.042 [0.117]	-0.132* [0.076]
i5660		0.149 [0.244]	0.202* [0.119]		-0.047 [0.184]	0.125 [0.082]
i2555		0.066 [0.487]	0.297** [0.117]		0.161 [0.398]	0.039 [0.079]
Age-at-Immigration						
ia05	-	-0.246*** [0.086]		-	-0.144** [0.062]	
ia610	-	-0.065 [0.085]		-	-0.175*** [0.061]	
ia1115	-	-0.134 [0.086]		-	-0.181*** [0.061]	
ia2125	0.142 [0.369]	0.223*** [0.083]		-1.037*** [0.394]	0.095 [0.063]	
ia2630	0.186 [0.368]	-0.148 [0.387]		-0.977** [0.394]	0.138 [0.245]	
ia3135	0.323 [0.370]	-		-0.837** [0.394]	-	
ia3640	0.597 [0.373]	-		-0.738* [0.396]	-	
ia4145	0.656* [0.378]	-		-0.836** [0.397]	-	
ia4650	0.704* [0.391]	-		-0.824** [0.402]	-	
ia5165	0.740* [0.397]	-		-0.913** [0.403]	-	
Region of Origin						
Western Europe	0.128 [0.128]	0.061 [0.089]		0.014 [0.099]	0.073 [0.063]	
Southern Europe	0.247 [0.253]	0.185* [0.109]		-0.124 [0.160]	-0.032 [0.071]	
Other Europe	0.345*** [0.099]	0.074 [0.112]		0.314*** [0.072]	0.078 [0.079]	
India & Pakistan	0.229* [0.128]	0.455*** [0.137]		0.279*** [0.090]	0.045 [0.106]	
China	-0.114 [0.127]	0.116 [0.129]		-0.203** [0.090]	-0.182* [0.095]	
Japan & Korea	-0.120 [0.159]	-0.168 [0.217]		-0.119 [0.116]	0.019 [0.176]	
South East Asia	0.196 [0.121]	0.108 [0.137]		0.128 [0.090]	-0.043 [0.108]	
Africa	0.076 [0.125]	0.270** [0.128]		0.204** [0.087]	0.090 [0.093]	
Mexico & S. America	0.190 [0.132]	0.293** [0.119]		0.242*** [0.094]	0.112 [0.092]	
Other	0.075 [0.131]	0.091 [0.161]		0.105 [0.089]	0.073 [0.111]	
Field of Study Controls						
Fields		Yes			Yes	
Fields*Immig		Yes			Yes	
Observations		141980			146077	
R-squared		0.054			0.032	

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%. Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 3 - 1996 BACHELORS' UNEMPLOYMENT INSURANCE

Variable	Females			Males		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	1.888*** [0.047]	-0.107 [0.397]	-0.140 [0.126]	1.382*** [0.041]	0.981** [0.413]	0.044 [0.104]
Fine & Applied Arts						
Fine Arts	-0.183*** [0.048]	0.056 [0.126]	0.196 [0.147]	0.414*** [0.051]	-0.151 [0.141]	-0.186 [0.149]
Lit. & Humanities						
History	-0.365*** [0.065]	0.419** [0.163]	0.383** [0.190]	-0.019 [0.043]	0.144 [0.153]	0.200 [0.144]
Media Studies	-0.069 [0.065]	-0.120 [0.182]	-0.050 [0.209]	0.125** [0.056]	-0.052 [0.183]	0.098 [0.178]
English	-0.216*** [0.047]	0.037 [0.135]	0.001 [0.137]	0.103** [0.062]	-0.061 [0.150]	0.290* [0.155]
French	-0.268*** [0.085]	0.117 [0.251]	0.329 [0.237]	0.280** [0.124]	0.026 [0.349]	-1.007** [0.441]
Other Literature	-0.150* [0.077]	0.020 [0.151]	0.340* [0.179]	-0.036 [0.097]	0.407** [0.194]	0.281 [0.244]
Philosophy	-0.267*** [0.062]	-0.018 [0.147]	0.155 [0.176]	0.006 [0.044]	-0.188 [0.126]	0.148 [0.142]
Other Humanities	-0.258*** [0.069]	0.247 [0.258]	0.221 [0.212]	0.197** [0.081]	0.329 [0.293]	-0.003 [0.254]
Social Science						
Economics	-0.290*** [0.077]	0.166 [0.144]	0.094 [0.171]	-0.209*** [0.037]	0.093 [0.104]	0.118 [0.111]
Geography	-0.314*** [0.070]	0.346 [0.251]	0.212 [0.236]	0.042 [0.043]	-0.203 [0.186]	0.045 [0.144]
Political Science	-0.377*** [0.074]	0.216 [0.213]	0.534*** [0.201]	-0.182*** [0.046]	0.262* [0.151]	0.092 [0.140]
Psychology	-0.154*** [0.039]	-0.063 [0.143]	0.071 [0.124]	0.087 [0.045]	0.219 [0.189]	0.005 [0.139]
Sociology	-0.162*** [0.048]	0.030 [0.168]	0.190 [0.151]	-0.038 [0.052]	-0.165 [0.187]	-0.041 [0.162]
Public Admin.	-0.411*** [0.058]	0.257 [0.224]	0.464** [0.215]	-0.268*** [0.041]	0.184 [0.169]	0.303* [0.183]
Commerce	-0.441*** [0.048]	0.199* [0.108]	0.255* [0.130]	-0.292*** [0.030]	0.026 [0.091]	0.254*** [0.098]
Finance	-0.410*** [0.048]	0.427*** [0.104]	0.409*** [0.132]	-0.382*** [0.031]	0.208** [0.091]	0.244** [0.100]
Marketing	-0.534*** [0.082]	0.507*** [0.234]	0.663** [0.271]	-0.291*** [0.056]	0.076 [0.177]	0.059 [0.198]
Law	-0.626*** [0.058]	0.363* [0.203]	0.693*** [0.190]	-0.427*** [0.035]	0.411*** [0.129]	0.209* [0.126]
Other Soc Sci	-0.124*** [0.046]	-0.074 [0.136]	0.331** [0.162]	0.011 [0.061]	0.067 [0.182]	-0.133 [0.226]
Agri. & Bio Science						
Agriculture Sci	-0.350*** [0.112]	0.591** [0.255]	0.251 [0.369]	-0.349*** [0.057]	0.349** [0.150]	0.278 [0.230]
Biological Sci	-0.173*** [0.062]	-0.112 [0.173]	0.217 [0.163]	-0.077 [0.048]	0.237 [0.158]	0.228 [0.140]
Other Life Sci	-0.276*** [0.061]	0.179 [0.154]	0.130 [0.195]	-0.095 [0.101]	0.335 [0.241]	0.119 [0.267]
Eng. & Applied Sci						
Architecture	-0.085 [0.145]	-0.288 [0.279]	0.007 [0.387]	0.103 [0.066]	0.052 [0.140]	0.096 [0.174]
Other Engineering	-0.329*** [0.129]	0.006 [0.227]	0.396 [0.319]	-0.328*** [0.035]	0.236*** [0.088]	0.169* [0.097]
Chemical Eng.	-0.211 [0.198]	0.704*** [0.327]	0.625 [0.497]	-0.462*** [0.068]	0.214 [0.159]	0.183 [0.182]
Civil Engineering	-0.447** [0.193]	0.598** [0.302]	1.194** [0.501]	-0.203*** [0.044]	0.246** [0.105]	0.068 [0.133]
Electrical Eng.	-0.675*** [0.243]	0.852** [0.339]	-0.120 [0.417]	-0.536*** [0.043]	0.371*** [0.098]	0.392*** [0.110]
Mechanical Eng.	-0.145 [0.192]	0.351 [0.321]	1.248** [0.497]	-0.400*** [0.040]	0.358*** [0.093]	0.175 [0.111]
Forestry	-0.147 [0.253]	-0.393 [0.651]	-0.776 [0.806]	-0.185*** [0.070]	0.007 [0.276]	0.012 [0.268]
Health Science						
Medicine	-0.523*** [0.073]	0.136 [0.162]	0.549*** [0.191]	-0.404*** [0.063]	0.114 [0.150]	-0.058 [0.166]
Nursing	-0.192*** [0.038]	-0.007 [0.107]	0.036 [0.131]	-0.365*** [0.128]	-0.156 [0.282]	0.505 [0.360]
Public Health	-0.219 [0.254]	-0.259 [0.721]	1.427** [0.690]	-0.349 [0.329]	-0.208 [0.850]	0.601 [0.809]
Medical Techn.	-0.397*** [0.126]	0.102 [0.223]	0.282 [0.314]	-0.312** [0.156]	0.184 [0.262]	0.562 [0.359]
Natural Science						
Mathematics	-0.272*** [0.085]	0.014 [0.190]	0.137 [0.199]	-0.231*** [0.051]	0.227* [0.135]	0.067 [0.138]
Computer Sci	-0.609*** [0.094]	0.511*** [0.122]	0.266 [0.179]	-0.511*** [0.041]	0.348*** [0.109]	0.330*** [0.107]
Chemistry	-0.464*** [0.134]	0.417* [0.221]	0.774*** [0.293]	-0.156** [0.068]	0.055 [0.142]	-0.001 [0.162]
Physics	-0.551* [0.308]	0.638 [0.435]	0.608 [0.616]	-0.237*** [0.077]	0.337** [0.164]	0.095 [0.189]
Earth Sci	-0.584*** [0.181]	0.338 [0.426]	0.381 [0.519]	-0.161*** [0.062]	0.205 [0.182]	-0.082 [0.191]
Other Science	-0.531*** [0.094]	0.142 [0.199]	0.387* [0.225]	-0.116** [0.056]	0.312** [0.143]	0.162 [0.147]
Trades & Technology						
Trades	2.166** [1.078]	-2.917** [1.321]	-3.657 [2.288]	0.196 [0.391]	-0.357 [0.509]	0.099 [0.803]
Observations:	141980			146077		
R-squared	0.054			0.032		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%.

Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 4 - 1996 COLLEGE: UNEMPLOYMENT INSURANCE

Variable	Females			Males		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	2.209*** [0.036]	-0.161 [0.123]	0.201* [0.116]	1.761*** [0.053]	-0.138 [0.176]	0.048 [0.180]
Fine & Applied Arts						
Fine Arts	-0.332*** [0.035]	0.153 [0.096]	0.017 [0.118]	-0.052 [0.054]	0.005 [0.149]	0.030 [0.187]
Humanities						
Media Studies	-0.141** [0.056]	0.261 [0.200]	-0.263 [0.215]	-0.184*** [0.065]	0.150 [0.234]	-0.018 [0.239]
Literature	-0.279*** [0.088]	0.216 [0.177]	-0.018 [0.259]	-0.003 [0.131]	0.177 [0.280]	-0.169 [0.413]
Philosophy	-0.299*** [0.056]	-0.223 [0.197]	0.047 [0.236]	-0.121* [0.065]	-0.273 [0.207]	0.527** [0.267]
Othr. Humanities	-0.060 [0.127]	-0.210 [0.288]	0.080 [0.403]	-0.232* [0.132]	0.748** [0.348]	0.443 [0.495]
Social Science						
Economics	0.000 [0.291]	-0.001 [0.346]	-0.825 [0.535]	-0.233 [0.171]	0.245 [0.320]	0.270 [0.496]
Geography	-0.206 [0.168]	1.106* [0.607]	0.190 [0.646]	-0.152 [0.115]	0.038 [0.407]	-0.146 [0.438]
Political Science	-0.298 [0.323]	0.280 [0.639]	2.602*** [0.977]	0.137 [0.218]	-0.280 [0.661]	-0.588 [0.684]
Psychology	-0.051 [0.081]	-0.172 [0.321]	-0.074 [0.307]	0.073 [0.137]	-0.435 [0.597]	0.151 [0.522]
Socology Crim	-0.284** [0.141]	1.111** [0.483]	0.687 [0.470]	-0.495*** [0.131]	0.511 [0.490]	0.271 [0.399]
Public Admin	-0.215*** [0.042]	0.145 [0.135]	0.108 [0.161]	-0.126** [0.055]	0.056 [0.165]	0.113 [0.206]
Commerce	-0.243*** [0.033]	0.259*** [0.090]	-0.016 [0.111]	-0.305*** [0.050]	0.027 [0.143]	0.244 [0.177]
Finance	-0.123*** [0.030]	0.206** [0.081]	-0.017 [0.102]	-0.318*** [0.049]	0.176 [0.134]	0.209 [0.176]
Secretary Stud.	-0.172*** [0.024]	0.120* [0.071]	0.003 [0.092]	-0.106 [0.072]	0.064 [0.200]	0.044 [0.279]
Law	-0.080 [0.116]	-0.295 [0.387]	-0.174 [0.362]	-0.465*** [0.130]	0.259 [0.385]	0.301 [0.478]
Other Social Sci	-0.083** [0.036]	0.275** [0.133]	-0.036 [0.138]	-0.393*** [0.051]	0.451** [0.190]	0.220 [0.199]
Agricultural & Bio Sci						
Agriculture Sci	-0.095 [0.067]	-0.217 [0.210]	-0.241 [0.280]	-0.195*** [0.061]	0.008 [0.164]	0.173 [0.227]
Other Life Sci	-0.205 [0.143]	1.143*** [0.399]	0.450 [0.437]	-0.276* [0.146]	0.380 [0.417]	0.377 [0.511]
Home Ec.	-0.114** [0.057]	0.213 [0.130]	-0.044 [0.213]	0.290*** [0.075]	-0.218 [0.183]	-0.071 [0.254]
Fisheries	0.227 [0.205]	-0.107 [0.555]	-0.538 [0.757]	0.716*** [0.102]	-0.834*** [0.261]	-0.788* [0.417]
Eng. & Applied Science						
Forestry	0.421** [0.192]	0.543 [1.045]	1.039 [1.046]	0.458*** [0.076]	-0.154 [0.374]	-0.229 [0.326]
Landscape Arch	-0.341*** [0.116]	0.643* [0.338]	1.154*** [0.425]	-0.010 [0.068]	0.197 [0.216]	0.233 [0.216]
Health Science						
Nursing	-0.365*** [0.025]	0.217*** [0.071]	0.013 [0.099]	-0.501*** [0.080]	0.083 [0.215]	0.229 [0.294]
Medical Assist.	-0.233*** [0.035]	0.221** [0.106]	-0.160 [0.147]	-0.141 [0.097]	0.003 [0.281]	0.289 [0.356]
Public Health	0.121 [0.074]	0.490 [0.341]	-0.483 [0.320]	-0.263* [0.143]	0.254 [0.481]	0.649 [0.555]
Medical Techn.	-0.253*** [0.034]	0.440*** [0.114]	-0.002 [0.127]	-0.432*** [0.062]	0.247 [0.184]	0.185 [0.224]
Natural Science						
Chemistry	-0.351* [0.205]	0.308 [0.339]	-0.250 [0.481]	-0.528*** [0.122]	0.662** [0.274]	0.419 [0.360]
Physics	0.298 [0.580]	-0.118 [0.949]	-1.601 [1.776]	0.269 [0.276]	-0.878* [0.521]	-0.886 [0.807]
Earth Science	-0.220 [0.233]	0.295 [0.639]	-0.452 [0.908]	-0.233** [0.108]	-0.065 [0.303]	0.188 [0.421]
Other Science	-0.366*** [0.077]	0.412* [0.212]	0.035 [0.268]	-0.263*** [0.089]	0.143 [0.254]	0.690** [0.283]
Trades & Technology						
Building Tech.	-0.033 [0.112]	0.175 [0.248]	-0.162 [0.322]	0.076 [0.054]	-0.110 [0.148]	0.117 [0.194]
Trades	0.060 [0.091]	0.309 [0.219]	-0.668** [0.286]	0.338*** [0.046]	-0.235* [0.129]	0.047 [0.170]
Electronics Tech	-0.067* [0.038]	0.168 [0.107]	-0.143 [0.123]	-0.364*** [0.045]	0.233* [0.126]	0.327** [0.164]
Environ. Tech	0.394*** [0.179]	-0.932 [0.749]	0.486 [0.730]	0.101 [0.080]	0.233 [0.272]	-0.090 [0.327]
Mechanic	0.109 [0.117]	0.234 [0.299]	-0.559 [0.442]	-0.113** [0.046]	0.097 [0.128]	0.094 [0.172]
Transport Tech	-0.080 [0.111]	-0.009 [0.250]	-0.377 [0.381]	0.036 [0.055]	-0.080 [0.139]	-0.055 [0.187]
Observations	266146			190273		
R-squared	0.035			0.037		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%
 Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators,
 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 5 - 1996 MASTER'S: UNEMPLOYMENT INSURANCE

Variable	Females			Males		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	1.072*** [0.127]	-0.349 [2.657]	-0.192 [0.209]	1.191*** [0.089]	-0.420 [1.019]	0.102 [0.137]
Fine & Applied Arts						
Fine Arts	0.415*** [0.109]	-0.312 [0.223]	-0.472* [0.284]	0.640*** [0.088]	-0.816*** [0.186]	-0.237 [0.239]
Lit. & Humanities						
History	0.115 [0.156]	-0.442 [0.283]	-0.170 [0.333]	0.139* [0.082]	-0.377* [0.195]	0.533*** [0.205]
Media Studies	0.078 [0.080]	-0.132 [0.221]	-0.275 [0.222]	0.240*** [0.088]	-0.493** [0.221]	0.119 [0.245]
English	0.112 [0.122]	-0.127 [0.233]	0.150 [0.268]	0.249** [0.097]	-0.328 [0.221]	-0.235 [0.240]
French	0.496*** [0.191]	-0.579 [0.444]	-0.803 [0.480]	-0.104 [0.201]	-0.075 [0.437]	0.248 [0.525]
Other Literature	0.168 [0.146]	-0.411* [0.229]	-0.325 [0.270]	0.211 [0.135]	-0.264 [0.240]	0.118 [0.261]
Philosophy	-0.188* [0.104]	0.156 [0.290]	0.218 [0.328]	-0.012 [0.051]	-0.224* [0.134]	0.427*** [0.155]
Other Humanities	0.158 [0.146]	-0.496 [0.374]	0.827** [0.396]	0.657*** [0.130]	-0.669** [0.320]	0.174 [0.339]
Social Science						
Economics	-0.409** [0.164]	0.104 [0.257]	0.538 [0.357]	-0.060 [0.068]	-0.039 [0.141]	0.337* [0.179]
Geography	0.103 [0.130]	-0.464 [0.337]	0.020 [0.354]	0.290*** [0.072]	-0.445** [0.209]	-0.046 [0.213]
Political Science	0.211 [0.169]	0.046 [0.338]	-0.769* [0.398]	0.107 [0.090]	-0.619*** [0.216]	0.337 [0.229]
Psychology	-0.002 [0.083]	-0.301 [0.224]	0.154 [0.250]	0.034 [0.073]	-0.695*** [0.234]	0.246 [0.214]
Sociology Crim	-0.055 [0.145]	0.118 [0.315]	0.177 [0.368]	0.197* [0.102]	1.196*** [0.290]	1.164*** [0.292]
Public Admin	-0.322*** [0.099]	-0.187 [0.312]	0.267 [0.308]	-0.113* [0.058]	-0.009 [0.192]	0.428*** [0.211]
Commerce	-0.344*** [0.083]	-0.159 [0.212]	-0.087 [0.215]	-0.112*** [0.041]	-0.178 [0.111]	0.236** [0.114]
Finance	-0.483*** [0.153]	0.395 [0.268]	0.079 [0.334]	-0.157** [0.063]	-0.372*** [0.138]	0.213 [0.173]
Marketing	-0.241 [0.228]	0.653 [0.592]	0.181 [0.567]	-0.264** [0.119]	-0.062 [0.288]	0.520 [0.332]
Law	-0.225 [0.143]	0.197 [0.313]	-0.070 [0.387]	-0.197*** [0.069]	-0.321* [0.184]	0.242 [0.196]
Other Soc Sci	-0.031 [0.076]	-0.229 [0.211]	0.285 [0.215]	-0.037 [0.076]	-0.175 [0.205]	0.339 [0.222]
Agri. & Bio Science						
Agricultural Sci	0.174 [0.289]	-0.343 [0.451]	0.509 [0.685]	-0.095 [0.122]	-0.474** [0.224]	0.206 [0.372]
Biological Sci	0.190 [0.137]	-0.769*** [0.265]	-0.408 [0.319]	0.156* [0.089]	-0.408* [0.233]	0.460* [0.245]
Other Life Sci	-0.095 [0.175]	0.245 [0.310]	1.095** [0.441]	-0.091 [0.143]	-0.262 [0.277]	0.225 [0.374]
Eng. & Applied Sci						
Architecture	-0.085 [0.283]	0.037 [0.431]	0.765 [0.747]	0.231* [0.118]	-0.753*** [0.196]	-0.194 [0.281]
Other Engineering	-0.028 [0.216]	-0.305 [0.318]	-1.005* [0.556]	-0.199*** [0.063]	-0.227* [0.116]	0.350** [0.137]
Chemical Eng	0.252 [0.476]	-0.619 [0.640]	-0.624 [0.808]	-0.370*** [0.140]	0.070 [0.218]	0.599** [0.281]
Civil Engineering	-0.469 [0.391]	0.327 [0.503]	0.987 [0.720]	-0.147* [0.086]	-0.142 [0.143]	0.325 [0.201]
Electrical Eng	0.141 [0.500]	-0.432 [0.583]	-0.307 [0.925]	-0.126 [0.092]	-0.382*** [0.144]	0.161 [0.182]
Mechanical Eng	0.473 [0.465]	-0.740 [0.548]	-1.023 [1.053]	-0.243** [0.106]	-0.005 [0.151]	0.207 [0.201]
Forestry	-0.280 [0.520]	1.626 [1.294]	-1.363 [1.619]	-0.234 [0.169]	0.007 [0.376]	-0.069 [0.458]
Health Science						
Medicine	-0.380*** [0.139]	-0.237 [0.251]	-0.342 [0.314]	-0.198** [0.077]	-0.407** [0.160]	0.145 [0.181]
Other Health	0.021 [0.078]	-0.114 [0.207]	0.061 [0.233]	-0.077 [0.148]	-0.187 [0.293]	0.573 [0.368]
Natural Science						
Mathematics	-0.008 [0.242]	-0.547 [0.341]	-0.098 [0.495]	[0.099]	[0.189]	[0.222]
Computer Science	0.217 [0.274]	-0.797** [0.360]	0.214 [0.484]	-0.241*** [0.097]	-0.349** [0.157]	0.446** [0.199]
Chemistry	-0.108 [0.279]	-0.288 [0.365]	0.153 [0.528]	-0.147 [0.130]	-0.341 [0.214]	0.122 [0.286]
Physical Science	0.607 [0.540]	-0.776 [0.660]	-0.576 [0.971]	-0.022 [0.125]	-0.363* [0.215]	0.236 [0.265]
Earth Science	0.342 [0.259]	-0.824** [0.454]	-0.004 [0.718]	-0.074 [0.098]	-0.378* [0.197]	0.347 [0.236]
Other Science	0.008 [0.278]	0.484 [0.474]	0.206 [0.555]	0.041 [0.149]	-0.206 [0.296]	0.294 [0.346]
Observations	30253			44963		
R-squared	0.053			0.031		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%.

Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 6 - 1996 BACHELORS: GOVERNMENTAL TRANSFERS

Variables	Females			Males		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	3.349*** [0.045]	-0.184 [0.377]	-0.065 [0.119]	4.892*** [0.051]	0.303 [0.517]	-0.183 [0.131]
Vismin	0.548*** [0.059]	0.038 [0.114]	0.064 [0.113]	0.593*** [0.059]	0.231** [0.107]	-0.294*** [0.112]
Language Knowledge						
French	0.246*** [0.040]	0.205 [0.152]	-0.554** [0.239]	0.319*** [0.046]	0.716*** [0.165]	0.613** [0.299]
Bilingual	0.051** [0.023]	-0.043 [0.068]	-0.115* [0.061]	0.064*** [0.025]	0.036 [0.065]	0.028 [0.060]
Neither	1.298* [0.752]	-1.487* [0.772]	-0.405 [1.430]	1.490 [1.236]	-0.996 [1.247]	1.433 [1.620]
Arrival Cohort						
i9195		0.230 [0.145]	-0.188 [0.203]		1.327*** [0.144]	0.361 [0.233]
i8690		0.167 [0.146]	0.296** [0.142]		0.902*** [0.145]	0.816*** [0.147]
i8185		0.075 [0.151]	0.309** [0.125]		0.517*** [0.150]	0.590*** [0.127]
i7680		-0.104 [0.150]	0.200* [0.110]		0.229 [0.149]	0.410*** [0.109]
i7175		-0.047 [0.147]	0.054 [0.101]		0.304** [0.144]	0.307*** [0.098]
i6670		-0.077 [0.150]	0.097 [0.099]		0.209 [0.147]	0.077 [0.095]
i5660		-0.145 [0.232]	-0.201* [0.113]		0.039 [0.230]	0.030 [0.102]
i2555		-0.551 [0.463]	-0.355*** [0.112]		0.572 [0.498]	0.044 [0.099]
Age-at-Immigration						
ia05	-	-	0.268*** [0.081]	-	-	0.113 [0.077]
ia610	-	-	0.208** [0.081]	-	-	-0.163** [0.076]
ia1115	-	-	0.037 [0.082]	-	-	-0.057 [0.077]
ia2125	-0.303 [0.351]	-0.143* [0.078]	-	-1.170** [0.493]	0.223*** [0.079]	-
ia2630	-0.056 [0.350]	0.168 [0.368]	-	-1.042** [0.493]	0.563* [0.307]	-
ia3135	0.169 [0.352]	-	-	-0.593 [0.494]	-	-
ia3640	0.276 [0.355]	-	-	-0.188 [0.495]	-	-
ia4145	0.356 [0.360]	-	-	-0.045 [0.497]	-	-
ia4650	0.372 [0.372]	-	-	-0.024 [0.503]	-	-
ia5165	0.155 [0.377]	-	-	-0.289 [0.504]	-	-
Region of Origin						
Western Europe	0.195 [0.122]	0.042 [0.085]	-	0.596*** [0.124]	0.239*** [0.079]	-
Southern Europe	0.570** [0.240]	-0.261** [0.104]	-	1.344*** [0.200]	0.158* [0.089]	-
Other Europe	0.739*** [0.094]	0.075 [0.106]	-	1.837*** [0.090]	0.324*** [0.099]	-
India & Pakistan	-0.540*** [0.122]	-0.759*** [0.131]	-	0.921*** [0.113]	0.332** [0.133]	-
China	-0.335*** [0.120]	-0.316** [0.123]	-	0.332*** [0.113]	0.337*** [0.119]	-
Japan & Korea	-0.574*** [0.151]	-0.260 [0.207]	-	0.810*** [0.145]	0.798*** [0.220]	-
South East Asia	0.218* [0.115]	-0.304** [0.130]	-	0.491*** [0.113]	0.323** [0.135]	-
Africa	-0.052 [0.119]	-0.192 [0.122]	-	0.838*** [0.109]	0.184 [0.116]	-
Mexico & S. America	0.437*** [0.125]	0.252** [0.113]	-	0.667*** [0.118]	0.477*** [0.115]	-
Other	0.151 [0.125]	-0.166 [0.153]	-	1.442*** [0.111]	0.689*** [0.139]	-
Field of Study Controls						
Fields		Yes			Yes	
Fields*Immig		Yes			Yes	
Observations		141980			146077	
R-squared		0.087			0.156	

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%;

*** 1%. Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 7 - 1996 BACHELORS: GOVERNMENTAL TRANSFERS

Variable	Female			Male		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	3.349*** [0.045]	-0.184 [0.377]	-0.065 [0.119]	4.892*** [0.051]	0.303 [0.517]	-0.183 [0.131]
Fine & Applied Arts						
Fine Arts	0.915*** [0.046]	-0.742*** [0.120]	-0.198 [0.140]	1.497*** [0.063]	-0.733*** [0.177]	-0.416** [0.187]
Lit. & Humanities						
History	0.428*** [0.061]	-0.290* [0.155]	-0.118 [0.181]	0.563*** [0.054]	-0.218 [0.191]	0.104 [0.180]
Media Studies	0.478*** [0.062]	-0.217 [0.174]	-0.089 [0.198]	0.599*** [0.070]	0.035 [0.229]	0.422* [0.223]
English	0.357*** [0.045]	-0.297** [0.128]	-0.054 [0.130]	0.852*** [0.065]	-0.387*** [0.187]	-0.159 [0.195]
French	0.390*** [0.081]	-0.248 [0.239]	-0.492** [0.225]	0.664*** [0.155]	-0.060 [0.437]	1.049* [0.552]
Other Literature	0.422*** [0.073]	-0.487*** [0.144]	-0.210 [0.170]	0.676*** [0.122]	0.014 [0.243]	0.087 [0.305]
Philosophy	0.718*** [0.059]	-0.664*** [0.140]	-0.380** [0.168]	1.401*** [0.055]	-0.932*** [0.158]	-0.373** [0.178]
Other Humanities	0.700*** [0.066]	-0.424* [0.246]	-0.194 [0.202]	0.913*** [0.101]	0.061 [0.367]	-0.217 [0.331]
Social Science						
Economics	0.045 [0.073]	0.269* [0.137]	0.357** [0.163]	-0.058 [0.046]	-0.086 [0.130]	0.136 [0.139]
Geography	0.216*** [0.067]	-0.037 [0.239]	-0.025 [0.225]	0.263*** [0.053]	-0.398* [0.232]	-0.289 [0.180]
Political Science	0.456*** [0.070]	-0.306 [0.203]	-0.290 [0.191]	0.275*** [0.057]	0.161 [0.189]	-0.066 [0.175]
Psychology	0.418*** [0.038]	-0.042 [0.136]	0.001 [0.118]	0.469*** [0.056]	-0.101 [0.237]	0.016 [0.174]
Sociology	0.534*** [0.046]	-0.017 [0.160]	0.041 [0.143]	0.270*** [0.065]	0.191 [0.234]	0.472** [0.202]
Public Admin.	-0.115** [0.056]	0.242 [0.213]	0.128 [0.204]	-0.359*** [0.051]	0.224 [0.212]	0.138 [0.230]
Commerce	-0.072 [0.046]	0.256** [0.102]	0.060 [0.124]	-0.296*** [0.037]	0.406*** [0.114]	0.351*** [0.123]
Finance	-0.374*** [0.046]	0.370*** [0.098]	0.246** [0.125]	-0.446*** [0.038]	0.205 [0.114]	0.182 [0.125]
Marketing	-0.009 [0.078]	0.166 [0.222]	0.137 [0.258]	-0.200*** [0.071]	0.360 [0.221]	-0.034 [0.247]
Law	-0.077 [0.055]	0.319* [0.193]	-0.002 [0.180]	-0.747*** [0.044]	0.703*** [0.162]	0.192 [0.157]
Other Soc Sci	0.513*** [0.044]	-0.088 [0.129]	-0.058 [0.154]	0.532*** [0.077]	-0.006 [0.228]	0.711** [0.282]
Agri. & Bio Science						
Agriculture Sci	0.137 [0.106]	0.158 [0.243]	-0.286 [0.351]	0.457*** [0.071]	0.071 [0.188]	-0.025 [0.288]
Biological Sci	0.219*** [0.059]	-0.380** [0.164]	-0.233 [0.155]	0.229*** [0.061]	0.102 [0.198]	-0.279 [0.175]
Other Life Sci	-0.171*** [0.058]	0.325** [0.146]	0.308* [0.185]	0.570*** [0.127]	-0.443 [0.302]	0.592* [0.334]
Eng. & Applied Sci						
Architecture	0.373*** [0.138]	-0.604** [0.265]	-0.050 [0.368]	0.423*** [0.082]	-0.166 [0.175]	0.314 [0.218]
Other Engineering	-0.149 [0.123]	0.183 [0.216]	0.205 [0.303]	-0.577*** [0.043]	0.151 [0.110]	0.162 [0.122]
Chemical Eng.	-0.599*** [0.188]	0.172 [0.311]	0.405 [0.473]	-1.107*** [0.085]	0.554*** [0.199]	0.256 [0.228]
Civil Engineering	-0.391** [0.184]	0.182 [0.287]	-0.142 [0.476]	-0.769*** [0.056]	0.558*** [0.131]	0.145 [0.166]
Electrical Eng.	-0.759*** [0.231]	0.917*** [0.322]	0.053 [0.396]	-0.886*** [0.053]	0.486*** [0.122]	0.195 [0.138]
Mechanical Eng.	-0.335* [0.183]	0.476 [0.305]	-0.268 [0.473]	-0.802*** [0.050]	0.501*** [0.117]	0.218 [0.139]
Forestry	-0.422* [0.240]	1.181* [0.629]	0.519 [0.766]	-0.601*** [0.088]	1.032*** [0.346]	0.009 [0.336]
Health Science						
Medicine	-0.699*** [0.070]	0.424*** [0.154]	-0.114 [0.181]	-0.948*** [0.079]	0.162 [0.188]	-0.293 [0.208]
Nursing	-0.244*** [0.036]	0.116 [0.102]	0.113 [0.125]	-0.078 [0.161]	0.180 [0.353]	-0.359 [0.450]
Public Health	-0.205 [0.241]	0.498 [0.686]	0.128 [0.656]	-1.184*** [0.412]	-1.338 [1.064]	0.871 [1.013]
Medical Techn.	-0.031 [0.120]	0.335 [0.212]	-0.126 [0.299]	0.444*** [0.196]	-0.834** [0.328]	0.032 [0.449]
Natural Science						
Mathematics	-0.333*** [0.080]	0.287 [0.180]	0.169 [0.189]	-0.332*** [0.064]	0.386** [0.169]	0.103 [0.173]
Computer Sci	-0.389*** [0.080]	0.069 [0.164]	-0.171 [0.170]	-0.544*** [0.051]	-0.254* [0.137]	0.056 [0.134]
Chemistry	-0.128 [0.127]	-0.234 [0.210]	0.312 [0.279]	-0.235*** [0.083]	0.277 [0.178]	-0.050 [0.203]
Physics	-0.442 [0.293]	0.292 [0.414]	0.253 [0.586]	-0.004 [0.096]	0.151 [0.206]	0.125 [0.236]
Earth Sci	0.122 [0.172]	-0.485 [0.405]	-0.540 [0.493]	-0.370*** [0.077]	0.275 [0.228]	0.449* [0.238]
Other Science	0.018 [0.090]	0.069 [0.189]	0.035 [0.214]	-0.109 [0.071]	0.620*** [0.179]	0.241 [0.184]
Trades & Technology						
Trades	-1.051 [1.025]	1.397 [1.257]	2.936 [2.176]	-0.986** [0.489]	1.833*** [0.637]	0.684 [1.005]
Observations	141980			146077		
R-squared	0.087			0.156		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%, ** 5%, *** 1%.

Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators,

3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 8 - 1996 COLLEGE: GOVERNMENT TRANSFERS

Variable	Female			Male		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	3.046*** [0.038]	-0.596*** [0.130]	-0.224* [0.123]	5.265*** [0.060]	-0.600*** [0.198]	0.207 [0.202]
Fine & Applied Arts						
Fine Arts	0.392*** [0.037]	-0.076 [0.102]	0.235* [0.125]	0.388*** [0.061]	0.028 [0.168]	-0.473** [0.210]
Humanities						
Media Studies	0.329*** [0.060]	-0.495** [0.212]	0.353 [0.229]	0.013 [0.073]	0.270 [0.264]	0.094 [0.270]
Literature	0.553*** [0.094]	0.047 [0.188]	0.056 [0.275]	0.740*** [0.147]	-0.732** [0.316]	-0.806* [0.465]
Philosophy	0.100* [0.059]	-0.042 [0.209]	-0.134 [0.250]	0.451*** [0.074]	0.276 [0.233]	0.148 [0.301]
Othr. Humanities	1.091*** [0.135]	-0.740** [0.306]	0.000 [0.428]	0.380** [0.149]	0.554 [0.393]	0.448 [0.558]
Social Science						
Economics	0.929*** [0.309]	-0.968*** [0.367]	-1.229** [0.569]	-0.440** [0.193]	0.725** [0.361]	0.207 [0.559]
Geography	0.273 [0.179]	-0.456 [0.644]	-0.435 [0.686]	-0.438*** [0.129]	-0.121 [0.459]	-0.996** [0.493]
Political Science	0.360 [0.343]	0.143 [0.679]	1.124 [1.037]	0.056 [0.246]	0.551 [0.745]	-1.008 [0.771]
Psychology	0.773*** [0.086]	-0.416 [0.341]	-0.301 [0.326]	0.312** [0.154]	0.451 [0.673]	-1.410** [0.589]
Socology Crim	0.290* [0.150]	0.178 [0.513]	-0.229 [0.499]	-0.740*** [0.148]	0.989* [0.553]	-0.637 [0.450]
Public Admin	0.029 [0.044]	0.157 [0.143]	-0.157 [0.170]	-0.332*** [0.062]	0.068 [0.186]	-0.234 [0.232]
Commerce	0.059* [0.035]	0.068 [0.096]	-0.108 [0.118]	-0.574*** [0.056]	0.380** [0.162]	-0.163 [0.199]
Finance	0.101*** [0.032]	-0.160* [0.086]	-0.197* [0.108]	-0.490*** [0.055]	0.126 [0.151]	-0.275 [0.198]
Secretary Stud.	0.006 [0.025]	0.109 [0.075]	-0.083 [0.097]	-0.088 [0.081]	-0.232 [0.226]	-0.466 [0.315]
Law	0.293** [0.123]	0.465 [0.411]	-0.149 [0.385]	-0.838*** [0.147]	0.176 [0.434]	0.160 [0.539]
Other Social Sci	0.534*** [0.038]	0.203 [0.141]	-0.080 [0.147]	-0.850*** [0.057]	0.922*** [0.214]	0.077 [0.225]
Agricultural & Bio Sci						
Agriculture Sci	0.469*** [0.071]	-0.346 [0.223]	-0.381 [0.298]	0.435*** [0.069]	0.015 [0.185]	-0.081 [0.256]
Other Life Sci	0.035 [0.152]	-0.173 [0.424]	0.443 [0.465]	-0.305* [0.164]	0.345 [0.470]	-0.289 [0.576]
Home Ec.	0.447*** [0.061]	-0.086 [0.139]	-0.041 [0.226]	0.490*** [0.085]	-0.030 [0.208]	-0.338 [0.287]
Fisheries	0.584*** [0.218]	0.030 [0.590]	-0.904 [0.804]	-0.058 [0.115]	-0.221 [0.294]	-1.020** [0.470]
Eng. & Applied Science						
Forestry	0.408** [0.204]	-1.066 [1.110]	1.166 [1.111]	-0.501*** [0.086]	0.035 [0.421]	-0.157 [0.368]
Landscape Arch	0.189 [0.123]	-0.509 [0.359]	-0.080 [0.452]	-0.404*** [0.077]	0.055 [0.244]	-0.141 [0.243]
Health Science						
Nursing	-0.535*** [0.027]	0.454*** [0.076]	0.127 [0.105]	-0.721*** [0.091]	-0.131 [0.243]	0.427 [0.332]
Medical Assist.	0.461*** [0.037]	0.279** [0.113]	-0.198 [0.156]	0.251** [0.109]	-0.516 [0.316]	-0.221 [0.401]
Public Health	-0.465*** [0.078]	0.349 [0.362]	-0.323 [0.340]	-0.734*** [0.161]	0.373 [0.542]	0.240 [0.626]
Medical Techn.	-0.272*** [0.036]	0.389*** [0.121]	0.129 [0.135]	-0.506*** [0.070]	0.228 [0.207]	-0.365 [0.252]
Natural Science						
Chemistry	-0.403* [0.217]	0.236 [0.360]	-0.365 [0.511]	-0.953*** [0.137]	0.738** [0.309]	-0.489 [0.406]
Physics	-0.062 [0.616]	0.358 [1.008]	0.212 [1.886]	-0.182 [0.311]	-0.171 [0.588]	-0.902 [0.910]
Earth Science	0.055 [0.248]	-0.035 [0.679]	-1.408 [0.964]	-0.740*** [0.121]	0.464 [0.342]	-0.990** [0.475]
Other Science	-0.449*** [0.082]	0.762*** [0.225]	0.157 [0.284]	-0.282*** [0.100]	0.210 [0.286]	-0.707** [0.319]
Trades & Technology						
Building Tech.	0.089 [0.119]	-0.393 [0.263]	-0.410 [0.341]	-0.751*** [0.061]	0.495*** [0.167]	-0.320 [0.219]
Trades	0.572*** [0.097]	-0.288 [0.233]	0.148 [0.303]	-0.252*** [0.052]	0.117 [0.145]	-0.357* [0.192]
Electronics Tech	0.344*** [0.040]	0.033 [0.114]	-0.406*** [0.131]	-0.665*** [0.050]	0.347** [0.142]	-0.258 [0.185]
Environ. Tech	0.115 [0.190]	1.294 [0.796]	-0.204 [0.775]	-0.884*** [0.090]	0.411 [0.306]	0.181 [0.369]
Mechanic	0.427*** [0.124]	-0.161 [0.318]	0.198 [0.469]	-0.517*** [0.052]	0.132 [0.144]	-0.267 [0.194]
Transport Tech	0.666*** [0.118]	-0.703*** [0.265]	-0.554 [0.405]	-0.758*** [0.061]	0.277* [0.157]	-0.195 [0.210]
Observations	266146			190273		
R-squared	0.035			0.074		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%

Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 9 - 1996 MASTERS: GOVERNMENTAL TRANSFERS

Variable	Female			Male		
	Cdn Born	Foreign Educ	Cdn Educ	Cdn Born	Foreign Educ	Cdn Educ
Immigrant	3.792*** [0.122]	-0.822 [2.560]	-0.148 [0.201]	4.878*** [0.118]	-0.295 [1.349]	-0.243 [0.181]
Fine & Applied Arts						
Fine Arts	1.231*** [0.105]	-0.822*** [0.215]	-0.330 [0.274]	2.036*** [0.116]	-1.768*** [0.246]	0.231 [0.317]
Lit. & Humanities						
History	0.644*** [0.151]	-0.330 [0.272]	-0.028 [0.321]	0.994*** [0.108]	-0.381 [0.258]	-0.035 [0.271]
Media Studies	0.429*** [0.077]	-0.516** [0.213]	0.007 [0.214]	1.092*** [0.116]	-1.585*** [0.293]	0.117 [0.324]
English	0.617*** [0.118]	-0.658*** [0.224]	-0.073 [0.258]	0.952*** [0.128]	-0.535* [0.293]	0.131 [0.318]
French	0.638*** [0.184]	-1.397*** [0.428]	-0.136 [0.462]	0.598** [0.267]	-0.068 [0.579]	0.396 [0.695]
Other Literature	0.854*** [0.141]	-0.716*** [0.221]	-0.388 [0.260]	1.115*** [0.179]	-1.214*** [0.318]	-0.278 [0.345]
Philosophy	1.686*** [0.100]	-1.181*** [0.279]	-1.006*** [0.316]	2.404*** [0.067]	-1.261*** [0.177]	-0.370* [0.205]
Other Humanities	0.927*** [0.141]	-0.651* [0.360]	-0.319 [0.381]	1.430*** [0.172]	-0.735* [0.424]	-0.437 [0.449]
Social Science						
Economics	0.078 [0.158]	-0.445* [0.248]	-0.233 [0.343]	-0.161* [0.090]	0.388** [0.186]	0.731*** [0.237]
Geography	0.392*** [0.126]	-0.666** [0.325]	-0.284 [0.341]	0.107 [0.095]	-0.187 [0.277]	0.304 [0.281]
Political Science	0.332** [0.162]	-0.186 [0.326]	-0.219 [0.383]	0.476*** [0.120]	0.254 [0.286]	0.314 [0.303]
Psychology	0.376** [0.080]	0.106 [0.216]	0.426* [0.241]	0.555*** [0.096]	-0.310 [0.310]	0.342 [0.284]
Sociology Crim	0.356** [0.140]	-0.794*** [0.304]	-0.173 [0.355]	0.517*** [0.135]	0.099 [0.363]	0.754* [0.386]
Public Admin	-0.231** [0.096]	0.200 [0.301]	-0.170 [0.296]	-0.244*** [0.077]	0.098 [0.254]	0.106 [0.279]
Commerce	-0.191** [0.080]	0.122 [0.205]	-0.128 [0.207]	-0.208*** [0.055]	-0.130 [0.146]	0.356** [0.151]
Finance	-0.115 [0.147]	0.326 [0.258]	0.159 [0.322]	-0.170** [0.084]	-0.174 [0.183]	0.302 [0.229]
Marketing	-0.374* [0.220]	-0.698 [0.571]	0.673 [0.546]	-0.080 [0.158]	-0.216 [0.381]	0.509 [0.440]
Law	-0.168 [0.138]	0.263 [0.302]	-0.044 [0.373]	-0.030 [0.091]	-0.063 [0.243]	0.602** [0.259]
Other Soc Sci	0.276*** [0.073]	-0.310 [0.203]	0.015 [0.208]	0.289*** [0.100]	-0.287 [0.271]	0.292 [0.294]
Agri. & Bio Science						
Agricultural Sci	0.310 [0.279]	-0.576 [0.435]	0.868 [0.660]	0.738*** [0.161]	-0.118 [0.297]	0.044 [0.492]
Biological Sci	0.125 [0.132]	0.054 [0.255]	0.064 [0.307]	0.462*** [0.118]	-0.336 [0.309]	0.507 [0.324]
Other Life Sci	0.145 [0.168]	-0.725** [0.299]	0.186 [0.425]	0.105 [0.189]	0.420 [0.366]	1.096** [0.495]
Eng. & Applied Sci						
Architecture	0.524* [0.272]	-0.562 [0.415]	0.568 [0.720]	0.976*** [0.156]	-1.066*** [0.259]	0.361 [0.372]
Other Engineering	0.126 [0.208]	-0.388 [0.307]	0.398 [0.536]	-0.270*** [0.083]	-0.346** [0.154]	0.576*** [0.182]
Chemical Eng	-1.292*** [0.459]	1.658*** [0.617]	2.296*** [0.779]	-0.414** [0.185]	-0.553* [0.289]	0.536 [0.372]
Civil Engineering	0.305 [0.377]	-0.262 [0.485]	-0.792 [0.694]	-0.220* [0.114]	-0.173 [0.190]	0.275 [0.267]
Electrical Eng	-0.846* [0.482]	0.884 [0.561]	0.305 [0.891]	-0.077 [0.121]	-1.005*** [0.190]	-0.090 [0.241]
Mechanical Eng	-0.398 [0.448]	0.346 [0.528]	-0.760 [1.014]	-0.176 [0.140]	-0.383* [0.200]	0.767*** [0.286]
Forestry	0.751 [0.501]	-2.485** [1.247]	-0.533 [1.560]	-0.087 [0.223]	-0.325 [0.497]	0.459 [0.606]
Health Science						
Medicine	-0.172 [0.134]	-0.277 [0.242]	0.077 [0.302]	-0.340*** [0.103]	-0.604*** [0.212]	0.053 [0.240]
Other Health	-0.142* [0.075]	0.107 [0.199]	0.035 [0.225]	0.266 [0.196]	-0.675* [0.388]	0.725 [0.487]
Natural Science						
Mathematics	-0.268 [0.233]	-0.473 [0.329]	-0.361 [0.477]	0.124 [0.131]	-0.766*** [0.250]	0.717** [0.294]
Computer Science	-0.333 [0.264]	-0.356 [0.347]	-0.103 [0.466]	0.008 [0.129]	-0.994*** [0.207]	-0.128 [0.264]
Chemistry	-0.339 [0.269]	-0.266 [0.352]	0.145 [0.509]	0.148 [0.173]	-0.269 [0.283]	0.329 [0.378]
Physical Science	-0.095 [0.520]	-0.731 [0.636]	-0.697 [0.935]	0.006 [0.165]	-0.585** [0.285]	0.538 [0.351]
Earth Science	0.564** [0.249]	-1.144*** [0.438]	-0.443 [0.682]	0.037 [0.130]	0.040 [0.261]	0.768** [0.313]
Other Science	-0.094 [0.267]	0.503 [0.457]	0.160 [0.535]	0.339* [0.197]	-0.982** [0.393]	0.292 [0.458]
Observations	30253			44963		
R-squared	0.090			0.182		

Source: 1996 Canadian Census

Notes: Heteroskedastic consistent standard errors in brackets. Significance Level: * 10%; ** 5%; *** 1%

Also included in the regression are 9 province of residence indicators, 23 census metropolitan area indicators, 3 census area indicators for BC, ON, and PQ, and a fourth order polynomial in age.

APPENDIX TABLE 10
Predicted UI receipt (\$) *Workers and non-workers*

1996 CANADIAN CENSUS - FEMALES

Field	Canadian Born			Foreign Educ Immigrants			Cdn Educ Immigrants		
	College	Bachelor	Master's	College	Bachelor	Master's	College	Bachelor	Master's
Education									
Education	645	606	546	482	589	532	642	685	567
Fine & Applied Arts									
Fine Art	463	504	826	403	518	589	469	694	535
Literature & Humanities									
History		421	612		621	383		698	536
Media	561	566	590	543	487	504	429	609	466
English	-	488	611	-	492	524	-	553	737
French	-	464	896	-	506	489	-	729	510
Other Literature	488	522	646	453	517	417	478	829	484
Philosophy Theology	479	464	452	286	442	515	499	613	584
Other Humanities	608	468	639	368	582	379	655	660	1519
Social Science									
Economics	646	453	363	482	520	392	282	563	645
Geography	525	443	605	-	608	371	-	619	-
Political Science	-	416	674	-	501	687	-	802	324
Psychology	614	520	545	386	474	393	567	631	660
Sociology Criminology	486	516	517	1102	516	566	962	705	641
Specialized Admin.	520	402	396	449	505	319	577	723	536
Commerce	506	390	387	490	462	322	496	569	368
Finance	571	402	337	524	599	487	559	685	379
Secretarial Studies	544			458			543		
Marketing	-	355	429	-	573	-	-	-	534
Law	596	324	436	331	452	517	498	733	422
Other Social Science	594	535	529	584	483	410	571	843	731
Agricultural & BioScience									
Agriculture	587	427	650	353	749	449	459	620	-
Biology		510	660		443	298		717	456
Other Life Science	526	460	497	1231	534	618	820	593	1541
Household Science	576			532			548		
Fish Wildlife Manage	810			543			471		
Engineer & Applied Science									
Architecture		557	-		405	507		634	-
Other Engineering	-	436	531	-	426	381	-	733	-
Chemical Engineering		491	-		964	368		1037	-
Civil Engineering		388	-		684	461		1446	-
Electrical Engineering		309	-		702	397		310	-
Mechanical Engineer		524	-		723	407		-	-
Forestry	983	523	-	-	-	-	-	-	-
Landscape Architect	459			652			1449		
Health Professions									
Medicine		359	373		400	287		703	275
Other Health			557			484			615
Nursing	448	500		416	482		452	587	
Medical Assistant	511			476			434		
Public Health	729	487		888	-		448	-	
Rehab. Medicine	-	-	-	-	-	-	-	-	-
Medical Technician	501	407		581	438		498	611	
Math & Physical Sciences									
Mathematics		462	541		455	305		599	510
Computer Science		333	-		539	298		491	873
Chemistry	454	381	-	461	561	358	352	935	593
Physics	-	-	-	-	642	449	-	-	-
Earth Science	518	338	768	-	460	328	-	559	-
Other Science	448	435	550	505	487	869	462	725	702
Other									
Trades	685	-		697	278	-	350	-	
Electronic Technology	603			533			521		
Environment Tech	957			281			-		
Mechanic	720			679			410		
Transport Technology	596			441			407		

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

APPENDIX TABLE 11
Predicted UI receipt (\$)
Workers and non-workers

1996 CANADIAN CENSUS - MALES

Field	Canadian Born			Foreign Educ Immigrants			Cdn Educ Immigrants		
	College	Bachelor	Master's	College	Bachelor	Master's	College	Bachelor	Master's
Education									
Education	591	382	267	575	376	383	480	399	225
Fine & Applied Arts									
Fine Art	561	578	508	549	489	321	470	501	336
Literature & Humanities									
History		375	307		426	302		478	440
Media	492	433	340	556	405	297	392	499	321
English	-	423	343	-	392	354	-	591	228
French	-	-	-	-	-	-	-	-	-
Other Literature	589	368	330	684	545	363	-	510	312
Philosophy Theology	524	384	264	388	313	302	721	465	340
Other Humanities	469	465	516	964	636	378	593	485	516
Social Science									
Economics	468	310	252	582	335	347	498	365	296
Geography	508	398	357	513	320	328	-	436	287
Political Science	678	318	298	-	407	229	-	365	350
Psychology	636	417	277	-	511	198	601	438	297
Sociology Criminology	360	368	326	584	307	1542	383	369	876
Specialized Admin.	521	292	239	537	346	339	474	413	308
Commerce	435	285	239	436	288	287	452	384	254
Finance	430	261	229	499	316	225	430	348	238
Secretarial Studies	531			552			451		
Marketing		285	205		303	276		316	290
Law	371	249	220	468	370	228	407	321	235
Other Social Science	399	386	258	610	407	310	404	353	304
Agricultural & BioScience									
Agriculture	486	269	243	477	376	217	469	372	251
Biology		354	313		441	297		464	416
Other Life Science	449	347	244	639	478	269	531	409	257
Household Science	789			618			597		
Fish Wildlife Manage	1208			511			447		
Engineer & Applied Science									
Architecture		423	337		439	227		487	233
Other Engineering		275	219	-	343	250	-	340	261
Chemical Engineering		241	185		293	284		302	282
Civil Engineering		312	231		393	287		349	268
Electrical Engineering		223	236		319	230		345	233
Mechanical Engineer		256	210		361	298		319	217
Forestry	935	318	212	781	315	305	604	336	-
Landscape Architect	585			694			600		
Health Professions									
Medicine		255	219		281	209		251	213
Other Health			248			294			369
Nursing	358	265		379	223		366	459	
Medical Assistant	513			501			557		
Public Health	454	-		570	-		706	-	
Rehab. Medicine	-	-	-	-	-	-	-	-	-
Medical Technician	383	280		478	331		375	513	
Math & Physical Sciences									
Mathematics		303	280		375	433		339	267
Computer Science		229	210		319	212		333	276
Chemistry	348	327	231	657	340	235	430	341	219
Physics	-	301	262	313	416	261	-	346	278
Earth Science	468	325	249	427	393	244	459	313	295
Other Science	454	340	279	510	458	324	736	418	314
Other									
Trades	829	465	-	638	320	-	705	-	-
Electronic Technology	411			505			463		
Environment Tech	654			804			485		
Mechanic	528			566			471		
Transport Technology	612			551			471		

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

APPENDIX TABLE 12
Predicted Gov. Transfers(\$)
Workers and non-workers

1996 CANADIAN CENSUS - FEMALES

Field	Canadian Born			Foreign Educ Immigrants			Canadian Educ Immigrants		
	College	Bachelor	Master's	College	Bachelor	Master's	College	Bachelor	Master's
Education									
Education	515	187	164	287	126	143	294	132	114
Fine & Applied Arts									
Fine Art	763	467	561	394	150	215	551	271	281
Literature & Humanities									
History		287	312		145	195		181	211
Media	716	302	252	243	164	131	582	195	177
English	-	267	304	-	134	137	-	179	197
French	-	276	379	-	146	82	-	120	231
Other Literature	896	285	385	523	118	164	541	164	182
Philosophy Theology	570	383	885	304	133	236	285	186	225
Other Humanities	1535	376	414	408	167	188	877	220	210
Social Science									
Economics	1305	196	177	276	173	99	218	198	98
Geography	678	232	243	-	151	108	-	160	-
Political Science	-	295	229	-	147	165	-	156	128
Psychology	1116	284	239	410	184	231	472	201	255
Sociology Criminology	689	319	234	458	212	92	313	235	137
Specialized Admin.	531	167	130	346	144	138	259	134	76
Commerce	547	174	135	326	152	133	280	131	83
Finance	570	129	146	270	126	176	267	117	119
Secretarial Studies	519			322			273		
Marketing	-	185	113	-	148	-	-	-	154
Law	691	173	139	612	161	157	340	122	92
Other Social Science	879	312	216	599	194	138	463	209	153
Agricultural & BioScience									
Agriculture	824	214	224	325	170	109	322	114	-
Biology		233	186		108	171		131	138
Other Life Science	534	158	190	250	147	80	475	152	159
Household Science	806			412			442		
Fish Wildlife Manage	924			530			214		
Engineer&Applied Science									
Architecture		272	-		100	137		183	-
Other Engineering	-	161	186	-	131	110	-	140	-
Chemical Engineering		103	-		82	206		109	-
Civil Engineering		126	-		103	149		78	-
Electrical Engineering		88	-		148	148		65	-
Mechanical Engineer		134	-		146	135		-	-
Forestry	776	123	-	-	-	-	-	-	-
Landscape Architect	623			209			329		
Health Professions									
Medicine		93	138		96	91		59	104
Other Health			142			138			103
Nursing	302	147		265	111		196	116	
Medical Assistant	818			602			383		
Public Health	324	152		256	-		134	-	
Rehab. Medicine	-	-	-	-	-	-	-	-	-
Medical Technician	393	181		323	171		255	113	
Math & Physical Sciences									
Mathematics		134	125		121	68		112	61
Computer Science		127	-		92	72		76	74
Chemistry	344	164	-	243	88	78	137	159	94
Physics	-	-	-	-	109	62	-	-	-
Earth Science	544	211	288	-	88	80	-	87	-
Other Science	329	190	149	392	138	215	220	140	122
Other									
Trades	913	-		381	179	-	604	-	
Electronic Technology	727			418			277		
Environment Tech	578			1175			-		
Mechanic	790			375			550		
Transport Technology	1004			277			329		

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

APPENDIX TABLE 13
Predicted Gov. Transfers(\$)
Workers and non-workers

1996 CANADIAN CENSUS - MALES

Field	Canadian Born			Foreign Educ Immigrants			Cdn Educ Immigrants		
	College	Bachelor	Master's	College	Bachelor	Master's	College	Bachelor	Master's
Education	857	284	188	907	426	355	1268	547	189
Fine & Applied Arts									
Fine Art	1263	1268	1439	1375	915	464	1165	1613	1827
Literature & Humanities									
History		498	508		602	656		1066	494
Media	868	517	560	1203	803	217	1412	1519	634
English	-	665	487	-	678	539	-	1095	560
French	-	-	-	-	-	-	-	-	-
Other Literature	1796	558	573	915	850	322	-	1174	438
Philosophy Theology	1345	1151	2079	1877	681	1113	2310	1530	1448
Other Humanities	1253	707	785	2308	1129	712	2903	1097	512
Social Science									
Economics	552	268	160	1206	369	446	1006	591	335
Geography	553	369	209	519	372	328	-	533	286
Political Science	906	374	302	-	659	737	-	675	417
Psychology	1171	453	327	-	616	454	423	889	464
Sociology Criminology	409	372	315	1163	675	657	320	1150	675
Specialized Admin.	615	198	147	690	372	307	720	439	165
Commerce	483	211	153	747	476	253	607	578	220
Finance	525	182	159	630	335	252	590	420	216
Secretarial Studies	785			659			730		
Marketing		232	174		500	264		433	291
Law	371	134	182	468	408	324	644	314	336
Other Social Science	366	483	251	975	721	356	586	1895	339
Agricultural & BioScience									
Agriculture	1323	448	393	1422	722	660	1806	843	414
Biology		357	281		593	379		520	470
Other Life Science	632	502	209	944	484	600	701	1749	630
Household Science	1399			1437			1478		
Fish Wildlife Manage	808			686			431		
Engineer & Applied Science									
Architecture		433	499		551	325		1143	721
Other Engineering	-	144	143	-	252	192	-	327	257
Chemical Engineering		94	124		245	135		234	214
Civil Engineering		131	151		345	240		293	200
Electrical Engineering		117	174		286	120		274	160
Mechanical Engineer		127	158		316	203		305	342
Forestry	519	156	172	569	656	235	657	303	-
Landscape Architect	572			640			736		
Health Professions									
Medicine		110	134		194	138		158	142
Other Health			245			236			510
Nursing	417	262		387	472		945	353	
Medical Assistant	1101			696			1307		
Public Health	411	-		632	-		774	-	
Rehab. Medicine	-	-	-	-	-	-	-	-	-
Medical Technician	517	442		687	288		531	880	
Math & Physical Sciences									
Mathematics		204	213		450	187		435	440
Computer Science		149	189		174	132		304	168
Chemistry	330	224	218	732	444	315	300	411	305
Physics	-	282	189	637	493	203	-	617	326
Earth Science	409	196	195	688	387	384	225	592	424
Other Science	646	254	264	844	711	187	472	624	356
Other									
Trades	666	106	-	792	994	-	690	-	-
Electronic Technology	441			660			504		
Environment Tech	354			565			628		
Mechanic	511			617			579		
Building Technology	404			702			435		
Transport Technology	401			560			489		
Other Fields	529	302	843	770	398	177	660	779	514

Source: 1996 Canadian Census. Dashes imply that the cell contents are suppressed for reasons of confidentiality.

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